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NATOMA MEWS
Draft Environmental Impact Report

90.109E

Draft EIR Publication Date: December 26, 1991
Draft EIR Public Hearing Date: January 30,1992
Draft EIR Public Comment Period: December 26, 1991 to February 10, 1992

Written comments should be sent to
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DATE: December 26, 1991

TO: Distribution List for the Natoma Mews Project Draft EIR

FROM: Barbara Sahm, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for the Natoma Mews Project

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This is the Draft of the Environmental Impact Report for the Natoma Mews project. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses" which will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the draft will automatically receive a copy of the Comments and Responses document along with notice of the date reserved for certification (usually about nine weeks after the hearing on the draft); others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Summary of Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final Environmental Impact Report. *The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution.* It will simply provide the information in one rather than two documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them.

If you want a copy of the Final EIR, please so indicate in the space provided on the next page and mail the request to the Office of Environmental Review within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.

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TO: *Department of City Planning,*
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Please send me a copy of the Final EIR.

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Department of City Planning

NATOMA MEWS
Draft Environmental Impact Report

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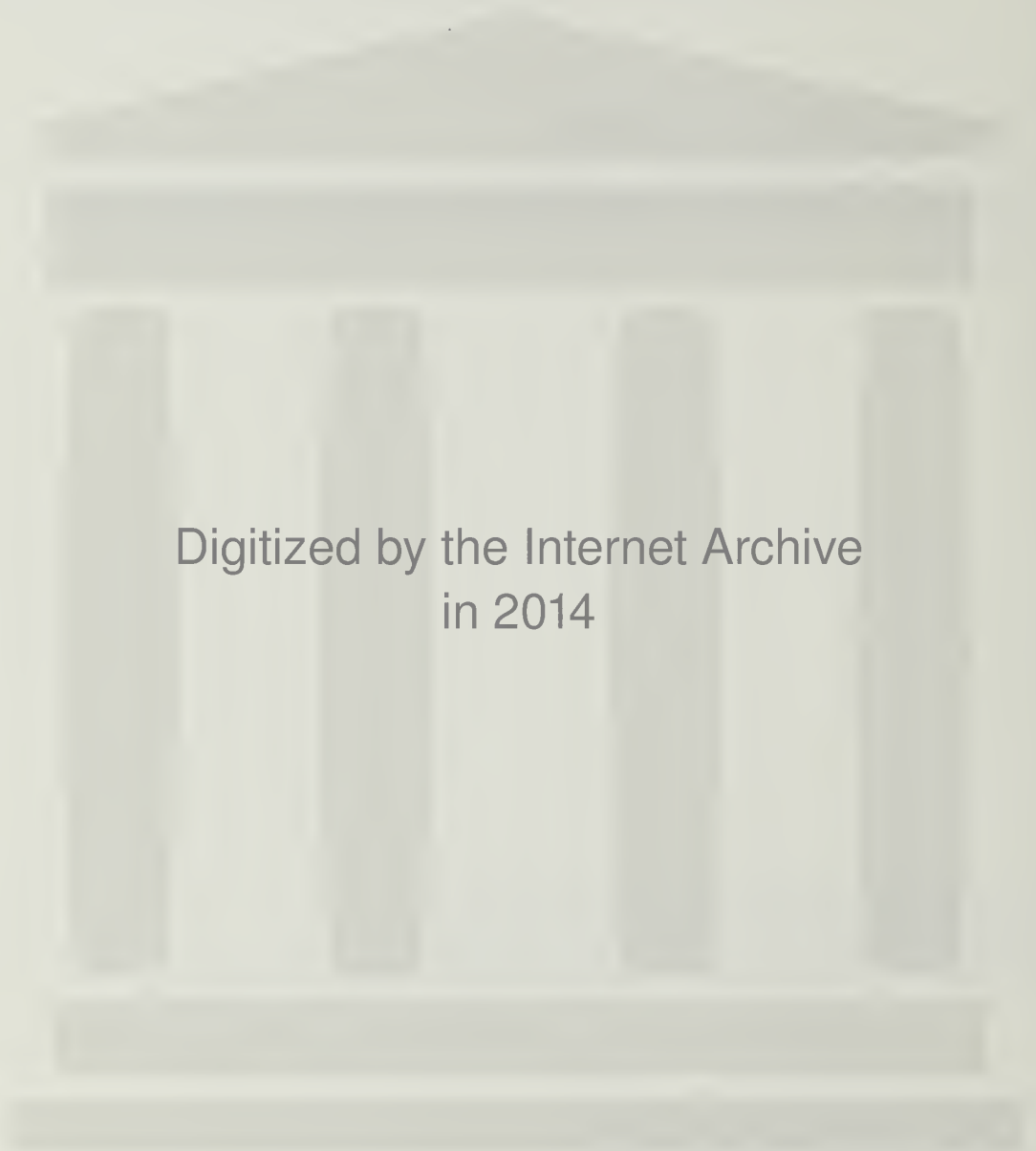
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NATOMA MEWS
DRAFT ENVIRONMENTAL IMPACT REPORT

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I. INTRODUCTION

This Environmental Impact Report (EIR) evaluates the potentially significant environmental effects associated with the proposed Natoma Mews project. The analyses contained herein address project-specific impacts and cumulative impacts to which the project would contribute.

This EIR incorporates information from Program EIRs that have been previously published. Most of this information is related to cumulative impacts of downtown growth contained in the Mission Bay EIR (Final EIR certified August 23, 1990, Case No. 86.505E), South of Market EIR (Final EIR certified December 7, 1989, Case No. 85.463E), and the Downtown Plan EIR (Final EIR certified October 18, 1984, Case No. EE81.3). The Mission Bay EIR covers the impacts of potential development in a 300-acre area just south of the greater downtown, from Townsend Street to Mariposa Street, east of the I-280 freeway. The South of Market Plan EIR analyzes impacts of development under the proposed South of Market Plan development controls and alternatives in the area generally south of Mission Street to the Mission Bay planning area and east of U.S. 101 to the Rincon Hill area east of Second Street. The Downtown Plan EIR analyzes the impacts of various development policy alternatives in the C-3 (Downtown) zoning districts in San Francisco.

The Mission Bay and South of Market Plan EIRs include the most current revised analysis and conclusions for the Downtown & Vicinity regarding overall cumulative transportation impacts in the future; and new cumulative air quality information. (The term "Downtown & Vicinity" means the C-3 District and the areas around it: South of Market, Mission Bay, South Van Ness, Civic Center, and the Northeastern Waterfront. See Mission Bay EIR, Vol. II, pp. IV.4-5.) The Downtown Plan EIR contains other cumulative impact information regarding such topics as energy consumption, community services and seismic effects that also is applicable to the Natoma Mews project. Where information from these area-wide EIRs is presented in this project EIR, incorporation by reference with a summary is used pursuant to CEQA Sections 21061 and 21100 (see also State CEQA Guidelines Section 15150). Documents incorporated by reference are available for public review at the San Francisco Department of City Planning, 450 McAllister Street, San Francisco; the San Francisco Main Library and various branch libraries.

A. PROJECT DESCRIPTION

PCI Developments Corporation proposes to build a 49-story, approximately 475-ft. in height (including a 17-foot roof-top mechanical level), residential and retail building on Natoma Street and Minna Street, and between First and Second Streets. The residential building would contain a total of about 640,430 gross square feet (gsf). Approximately 444,430 gsf of the residential building would be residential space in 509 units, and approximately 196,000 gsf would be non-residential space. The project would develop a private vehicular and pedestrian driveway between Natoma and Minna Streets, and would also include a 22,700 gsf, six-story office/retail building on the south side of Natoma Street. The project architect is Heller and Leake.

The project site is composed of Lots 31, 45A, 46, 53 and 54 of Assessor's Block 3721. The project block is bounded by Mission Street to the north, Second Street to the west, Howard Street to the south, and First Street on the east. Natoma and Minna Streets are minor streets that run east-west through the block. The elevated Transbay Transit Terminal ramps are adjacent to the site on the east; these ramps generally bisect the project block east-west.

The residential project would replace an existing 134-space attendant-controlled surface parking lot at the 32,915 sq. ft. residential building site north of Natoma Street. The office/retail project would replace a 16-space parking lot at that 4,580 sq. ft. lot south of Natoma Street.

The proposed residential project would contain a total of about 640,430 gsf, of which approximately 497,040 gsf would be applicable to the project's floor area ratio (FAR) as calculated under the City Planning Code. The residential tower would contain approximately 444,430 gsf of residential space that would count towards the project's gross floor area. About 11,080 gsf of building space would contain a health club on the podium level. The residential tower would also contain approximately 378 marked parking stalls (total), which could accommodate a total of about 406 cars with 28 of the stalls able to accommodate two cars each, proposed to be distributed as follows: 97,500 gsf of parking, excluding ramps (with about 232 cars in 204 marked

self-parking stalls plus 28 cars parked in tandem), on three subsurface levels, and 42,750 gsf of parking in two above-grade levels with parking for about 174 vehicles under tandem valet operation.

The residential tower would also contain about 10,010 gsf of retail space on the ground floor (including a "freestanding" retail building; about 12,790 gsf of lobby area, leasing office, mechanical and storage space and freight loading area on the ground floor; and about 5,590 sq. ft. of space in the rooftop mechanical penthouse. Vehicle access to the subsurface parking levels would be from Natoma Street, and to the above-grade levels would be from Minna Street. Pedestrian access to the project would be provided on Natoma and Minna Streets and via the new private through-street between Natoma and Minna Streets.

The proposed office/retail building south of Natoma Street would contain about 22,710 gsf, consisting of about 18,380 gsf of office area on the second through sixth floors about 3,230 gsf of retail space and about 1,100 gsf of lobby/support space on the ground floor. About 17,790 sq. ft. of the office/retail building would be applicable to the FAR calculation under the Code.

Total net changes in floor area for the site would be an increase of about 444,430 gsf of gross floor area in residential use, an increase of about 18,600 gsf of office space, an increase of about 13,240 gsf of retail space, an addition of about 11,080 gsf of health club space, and an addition of about 16,060 gsf of open space. There would be an increase of about 228 parking spaces on site. Residential, retail and office uses and open space would be new uses to the site.

The residential building site is in the C-3-0 (Downtown Office) Use District and 500-S and 550-S Height and Bulk Districts. The basic permitted floor area ratio (FAR) is 9:1 and the maximum allowable FAR, including transferable development rights (TDR), is 18:1. The FAR of the residential project would be about 15.1:1, and would require approximately 200,800 sq. ft. of TDR. The project's 475-foot height would comply with the height limits for the site. The project would require approval under City Planning Code Section 309 (for permit review in C-3 districts) and an exception to Section 132.1 regarding upper-level setbacks. The project would also require Conditional Use Authorization for parking in excess of accessory amounts pursuant to Section 157 and for dwelling unit density in excess of one unit per 125 sq. ft. of lot area, before issuance of site or building permits could occur.

The office/retail building site is in the C-3-0 (SD) (Downtown Office Special Development) and the 450-S Height and Bulk District. The basic permitted FAR is 6:1, and the FAR of the office project would be about 4.1:1.

Project construction would take about 30 months; total construction cost would be about $70,000,000 (1991 dollars). Project completion and initial occupancy is anticipated for early 1994.

B. MAIN ENVIRONMENTAL EFFECTS

LAND USE AND ZONING (pp. 79 to 92)

The residential building site is in the C-3-0 Downtown Office Use District and 500-S and 550-S Height and Bulk Districts. The residential project would replace a 134-space public parking lot with a 640,430 gsf high-rise residential and retail building and a 228-space net increase in the number of parking spaces (including spaces to be removed from the office site). The residential project would be similar in density, although different in type of use, compared to newer land uses to the north and northeast which consist primarily of high-rise office buildings. The project would differ in density and type of use compared to land uses to the east and west, which consist predominantly of older low-rise industrial and office buildings characteristic of the South of Market area, along with newer mid- and high-rise office buildings. The office/retail building site is in the C-3-0 (SD) Use District and a 450-S Height and Bulk District. The office/retail building would replace a 16-space parking lot with a low-rise office and retail building.

The project would require review under City Planning Code Section 309, and would require exceptions to upper-level setback requirements (Section 132.1(c)). Conditional Use Authorization would be required under City Planning Code Section 157 for parking exceeding the amount of off-street parking classified as accessory parking, and to meet dwelling unit density requirements in the C-3 District (Section 215(b)). The maximum length and maximum diagonal dimensions, and the maximum average floor and maximum floor sizes would be within the lower tower and upper tower bulk maximums of the S-bulk district. The upper tower volume reduction would exceed the minimum volume reduction required for the upper tower. Required open space for the residential and commercial uses of the project would be provided on-site.

The Mission Bay EIR forecasts show about 32,080 to 34,730 housing units in the Downtown and Vicinity in the year 2000, an increase of about 6,440 to 9,090 units over the number of housing units existing in 1986. The proposed Natoma Mews project would contribute about eight percent of the total housing units added to the Downtown and Vicinity between 1986 and 2000. The Mission Bay EIR forecasts a resident population in the Downtown and Vicinity of 57,420 to 62,650 in 2000, an increase of about 11,090 to 16,320 persons, depending on the development scenario for Mission Bay; the Mission Bay EIR forecasts of population assumed an average household size of 2.3 persons-per-household for 1986 through 2000, for Downtown and Vicinity and Rest of City forecasts.

URBAN DESIGN (pp. 92 to 93)

The 475-foot-tall residential project would be stepped back horizontally at the 29th, 42nd and 47th floors, and would be stepped in and notched at all four corners. It would be visible from long range viewpoints such as Potrero Hill and Twin Peaks. It would be larger in scale and height than most existing adjacent buildings in the general vicinity; it would be similar in scale to other recently approved or under-construction buildings in the Second Street - South of Market area.

SHADOW AND WIND (pp. 93 to 119)

The project would cast no new shadow on any Recreation and Park Department property during the hours defined by the Sunlight Ordinance and would thus comply with the ordinance. The project would cast new shadow on streets, sidewalks, open space and buildings in the project area.

A wind tunnel simulation for the project site indicates that wind speeds do not currently exceed the 11 mph equivalent wind speed pedestrian comfort criterion established in the Downtown Plan at any of the 20 locations tested and would not exceed the 11 mph criterion at any of the 20 locations tested with the project in place. The seven mph seating area criterion is currently exceeded at two test locations within proposed project seating areas, but would not be exceeded at the two test locations with the project.

CULTURAL RESOURCES (pp. 119 to 120)

The project would include excavation to a depth of 36 ft. below grade, and may disturb some Prehistoric Period soils never previously exposed. Landfilling on the site in the mid-1850's and early 1860's may have buried cultural resources beneath the present ground surface, including possible prehistoric Native American artifacts and 19th century cultural resources. Other identified prehistoric sites are located in the site area. There is a possibility that both early and later Gold Rush, and Late 19th Century cultural resources exist within the project site.

HAZARDOUS MATERIALS (pp. 120 to 126)

The project site and surrounding areas have a history of mixed residential and industrial land uses. Industrial land uses often involve handling and storage of chemicals whose properties of toxicity, ignitability, corrosivity, or reactivity render them hazardous materials or hazardous wastes.

The property is inland of the historic high tide line and therefore does not fall under provisions of San Francisco's "Analyzing the Soil for Hazardous Wastes" ordinance (Maher Ordinance). Sampling and testing of the project site have shown that hazardous wastes generated by former site users have affected soils to some degree. Lead and diesel (deposits) have been detected in soils; portions of the area to be excavated contain contaminant concentrations exceeding state hazardous waste guidelines. Development of the site would result in disturbance of contaminated soil.

Hazardous materials-related impacts of the project would be related almost entirely to excavation and treatment and/or disposal of contaminated soil. Unless properly managed, earthmoving in contaminated areas could directly expose workers, the public, or the environment to soils contaminated with hazardous wastes. Migration of contaminated dust during construction activities could also affect nearby public areas and the environment. Health and safety impacts would be proportional to the amount of contaminated soils uncovered. If contaminated fill were to be removed during the project implementation, the project would decrease proportionately available capacities of the region's hazardous waste treatment and disposal facilities.

TRANSPORTATION (pp. 127 to 151)

The project would generate about 7,310 net new person trip ends (pte) per day with about 6,490 daily pte attributable to the residential tower and about 820 daily pte attributable to the office/retail building. About 350 new outbound trips (256 from the residential tower and 94 from the office/retail building) would occur during the p.m. peak period, 210 of these (162 from the residential tower and 48 from the office/retail building) during the p.m. peak hour.

Both the Mission Bay and South of Market Plan EIRs show that by 2000, congested highway conditions caused by cumulative regional development would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

The project would add about 53 outbound trips to MUNI and 22 outbound trips to BART during the p.m. peak hour in the year 2000. Addition of the project MUNI riders, which in total would not be inconsequential, would not increase the loading ratios across any of the screenlines once they disperse across the numerous routes within those corridors. The costs of MUNI ridership demand generated by the project would be offset by the requirement of fees collected for the project pursuant to the Transit Impact Development Fee ordinance. Addition of BART riders from the project to the existing BART ridership also would not increase p.m. peak-hour Transbay or westbay loading ratios. Similar to MUNI, however, BART operates at a cost deficit, which would increase with additional riders generated by the project. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future, attracting a net increase in ridership.

The transit demand from the project would represent about 0.1 percent of the total transit demand in the year 2000. Cumulative development in the year 2000, in conjunction with planned capacity increases of transit carriers, would be expected to cause crowded conditions and change the LOS during the peak period for the following transit providers: MUNI Northeast Corridor, LOS D to E; BART Transbay, LOS E to F; and AC Transit, LOS C to E.

By 2020, all but the Southwest MUNI screenline would be operating beyond MUNI's load standard with projected cumulative demand. Additional service required could include new light rail service to the Geary Boulevard corridor to the Northwest, and to the Bayshore corridor in the Southeast area of the City. In 2020, crowded conditions during the peak period also would be expected for Golden Gate Transit (LOS D), BART Transbay (LOS F) and AC Transit (LOS E).

If the Mission Street ramps to and from the Bay Bridge were to remain closed, cumulative development, including that from the proposed project, by the year 2000 would be expected to worsen existing (1990, ramps closed) peak-hour vehicle Level of Service (LOS) "C" conditions at the Second / Howard Streets intersection to LOS "D"; would worsen existing LOS "E/F" conditions at the First / Howard Streets intersection to LOS "F"; would worsen existing LOS "D" conditions at the First / Mission Streets intersection to LOS "F"; and would worsen existing LOS "D" conditions at the Second / Mission Streets intersection to LOS "E." If the Mission Street ramps were to reopen, traffic operations at the study intersections would be expected to be incrementally better, although three of the four intersections would continue to operate at an unacceptable LOS E or F.

The project would represent less than 0.1 percent of total outbound regional auto demand on major corridors (bridges and freeways) in the year 2000. The project percent would not be measurable against day-to-day fluctuations in traffic volumes. However, cumulative travel demand is projected to exceed p.m. peak period capacity of some of the freeways serving San Francisco, resulting in shifts in travel modes (from automobiles to public transit and ridesharing) and extension of peak period congested conditions.

The proposed project would generate about 290 new pedestrian trips on the adjacent sidewalks during the noon 15-minute peak period, with about 255 pedestrian trips attributable to the residential tower and about 35 pedestrian trips attributable to the office/retail building, and about 200 new pedestrian trips during the p.m. 15-minute peak period (about 175 of which would be from the residential tower). Crosswalk operations, currently in the unimpeded range at locations studied for the project, would not change at locations adjacent to the project site, except the eastside crosswalk at Mission Street which would worsen from unimpeded to impeded during the p.m. peak 15-minute period.

With cumulative development by the year 2000 (project plus other development), crosswalk operations at Howard Street would be in the unimpeded range. The crosswalk across Mission Street would be in the impeded range.

The project would remove 150 existing parking spaces (including 134 long-term valet parking spaces) available to the public and would provide about 140,250 sq. ft. (378 spaces) of parking, which would accommodate about 406 vehicles (28 stalls would be oversized, accommodating two cars parked in tandem), with about 174 spaces under valet operation in the new building. Estimated equivalent daily parking demand from the project would be for about 536 spaces, resulting in an unmet demand of 280 spaces (total project demand [536] plus displaced public parking [150] minus proposed parking capacity [406] equals 280 spaces total unmet demand).

Sidewalk detours and curb lane closures on Natoma and Minna Streets would be necessary during construction. Construction truck traffic would be limited to the period between 9:00 a.m. and 3:30 p.m. Construction traffic would slow traffic movements along Minna, Natoma and Second Streets, including those of MUNI buses on First and Second Street.

AIR QUALITY (pp. 151 to 158)

Project-related vehicular traffic would add to cumulative regional pollutant emissions, and contribute to the continued failure of the Bay Area to attain federal ozone and CO standards. Project-related traffic alone would contribute less than one percent of transportation related emissions resulting from development in the County, and thus would not pose a potentially significant effect on air quality. However, emissions of particulates generated by project construction would increase particulate concentrations, which would incrementally increase the frequency of fine particulate matter standard (PM_{10}) violations in San Francisco, with concomitant health effects and reduced visibility.

In 1990, the eight-hour CO concentrations at all intersections in the site vicinity were estimated to be within air quality standards. Local CO concentrations are predicted to be less in 2000 than in 1985, because the effects of emission controls on new vehicles would offset increases in traffic volumes and congestion. Violations of state CO concentration standards may occur on the project site currently and could occur in the future due to the effects of existing and cumulative development in the area.

CONSTRUCTION NOISE (pp. 158 to 162)

Project construction would temporarily increase noise and vibration levels in the area of the site during the 30-month construction period. Highest average construction noise levels experienced in residences or offices and stores (depending on whether piledriving were to occur at night or during daytime hours) near the site could interfere with rest and speech. Pile driving and the operation of construction equipment could temporarily raise the noise level up to 80-85 dBA with windows open and 70-75 dBA with windows closed in adjacent buildings. The noise level at Dahl-Beck Electric Co. would be slightly greater during pile driving than the maximum noise levels of 95 dBA recommended by the Department of Health, Education and Welfare. Pile driving would cause vibrations, which are more irritating to some people than noise, in adjacent and nearby buildings. In the event of simultaneous construction activities at the 101 Second Street, 222 Second Street, 524 Howard Street, 299 Second Street or 300 Howard Street sites and construction of the project, noise levels would be expected to increase by another two to five dBA.

GEOLOGY AND SEISMICITY (pp. 162 to 165)

The Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Employment and population growth, such as that expected for Natoma Mews, would result in large numbers of persons being exposed in the future to earthquake hazards if an event occurred during the day or night. Since new buildings are subject to more stringent building and structural standards than are older buildings, persons living or working in buildings such as the proposed project would be relatively safer than those in some older buildings.

EMPLOYMENT AND POPULATION (pp. 165 to 168)

The project would accommodate about 138 net new employees in the C-3 District. About 198 additional jobs in the Bay Area would result from the employment multiplier effect of project operation. The project would require about 143 person-years of construction labor. About 29 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction.

About half of the people working in the Downtown & Vicinity would live in the City in 2000 and 2020. The Mission Bay EIR forecasts show about 32,080 to 34,730 housing units in the Downtown & Vicinity in the year 2000, an increase of about 6,440 to 9,090 units over the number of housing units existing in 1986. The Mission Bay EIR also forecasts a resident population in the Downtown & Vicinity of 57,420 to 62,650 in 2000, an increase of about 11,090 to 16,320 persons. The proposed project would contribute about eight percent of the total housing units added to the Downtown & Vicinity between 1986 and 2000. Construction of the proposed 509 residential units would exceed the number of new residential units predicted by Mission Bay EIR to be constructed annually in the Downtown & Vicinity between 1986 and 2000. The proposed 509 residential units could provide housing for about 809 persons at full occupancy, about one percent of the total resident population in the Downtown & Vicinity in 2000 forecast by the Mission Bay EIR.

GROWTH INDUCEMENT (pp. 168 to 169)

Increases in downtown residential space from the proposed project would contribute to growth of local and regional markets for goods and services, and would accommodate housing demand generated by employment growth. If marketed successfully, the project, together with other residential development in the downtown, could have growth-inducing effects by demonstrating a developing market for residential uses in this area of downtown. The project would be built in a developed urban area, and would require no expansion to the municipal infrastructure not already under consideration.

C. MAIN MITIGATION MEASURES

Some of the measures identified that would mitigate potentially significant environmental effects are presented below. A full recitation of mitigation measures proposed as part of the project or proposed for consideration are presented on pp. 170 to 176.

CULTURAL RESOURCES

MEASURES PROPOSED AS PART OF THE PROJECT

- The sponsor would retain the services of an archaeologist. The Environmental Review Officer (ERO) in consultation with the President of the Landmarks

Preservation Advisory Board (LPAB) and the archaeologist would determine whether the archaeologist should instruct all excavation and foundation crews on the project site of the potential for discovery of cultural and historic artifacts, and the procedures to be followed if such artifacts are uncovered.

Given the possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations the project sponsor would undertake a program of archaeological testing. This would consist of observation and monitoring by a qualified historical archaeologist of site clearance of at least any material below existing grade level, and the placement of a series of mechanical, exploratory trenches. The archaeologist would supervise the testing at the site to determine the probability for finding cultural and historical remains. At the completion of the archaeological testing program, the archaeologist would submit a written report to the ERO, with a copy to the project sponsor, which describes the findings, assesses their significance and proposes appropriate recommendations for any additional procedures necessary for the mitigation of adverse impacts to cultural resources determined to be significant.

An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior or during project excavation, even if this results in a delay in excavation activities.

In addition, a program of on-site construction monitoring by a qualified historical archaeologist, designed to allow for the recovery of a representative sample of the cultural materials existing on the site, would be implemented by the project sponsor. This monitoring and recovery program would result in a written report to be submitted to the ERO, with a copy to the project sponsor.

Should archaeological resources be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities which might damage the discovered cultural resources would be suspended for a maximum of four weeks (cumulatively for all instances where the ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon concurrence by the ERO and the President of the LPAB would be placed in an appropriate repository as determined by the ERO. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University along with three copies to the ERO.

HAZARDOUS MATERIALS

MEASURES PROPOSED AS PART OF THE PROJECT

- A site-specific mitigation plan and a Safety and Health Plan for hazardous materials and waste operations would be prepared and submitted to the San Francisco Department of Public Health before site activities would proceed. The site-specific Safety and Health Plan, which would be applicable to all activities at the site prior to completion of site remediation, would establish policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. The Plan would be prepared according to federal and California OSHA regulations for hazardous waste site Safety and Health plans (if such regulations are not adopted prior to site activities, National Institute for Occupational Safety and Health guidelines would be followed). The site safety officer's log would be made available to the San Francisco Department of Public Health for inspection.

- The site mitigation plan would involve a dust control program to minimize potential public health impacts associated with exposure to contaminated soil dust.

- Reports (including sample locations, chain of custody forms, and laboratory analysis reports) of further site investigations (if any) would be sent to the San Francisco Department of Public Health.

- A report describing the remediation process in detail and certifying completion of remediation would be prepared by a Registered Environmental Assessor (REA) or registered engineer, and submitted to the San Francisco Department of Public Health. The report would include copies of hazardous waste transport manifests. The REA or registered engineer would submit a certification that in his/her judgement completion of the remediation would mitigate significant environmental or health and safety risks likely to be caused by the hazardous wastes in the soil.

- Prior to any excavation, a magnetic tank-locating survey would be carried out to ascertain whether any underground tanks exist at the site, and if so, their locations. If USTs were determined to be present, the San Francisco Department of Public Health would be consulted to determine whether they should be removed or left in place (as required by law).

- From the time that the current pavement covering the site is taken up until the time that all remedial activities have been completed, a buffer zone would be put in place around the contaminated area within site boundaries and site access would be restricted to necessary personnel. This would serve to prevent impacts associated with accidental public access to the site.

- The project sponsor would employ licensed brokers or registered hazardous waste treatment engineers to handle its hazardous waste disposal needs, if any. Use of brokers or registered engineers would promote economical application of latest and best methods for waste handling of contaminated soils, such as recycling, reuse, waste minimization, or treatment or destruction of non-reusable waste using newly developing technologies.

- Warning signs prohibiting access by the general public onto the project site would be posted at all construction points. Access would be limited to authorized personnel only.

TRANSPORTATION

MEASURE PROPOSED AS PART OF THE PROJECT

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queuing of MUNI buses prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Department of Parking and Traffic, the Fire Department, MUNI and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction or which later become known.

AIR QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

- The project sponsor would require the contractor to sprinkle demolition sites with water regularly during excavation and construction activity; sprinkle unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand and other material; cover trucks hauling debris, soils, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce PM_{10} emissions. The project sponsor would require the project contractor to maintain and operate construction equipment so as to minimize exhaust emissions of PM_{10} and other pollutants, by such means as a prohibition on idling of motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions for equipment that would be in frequent use for much of the construction period.

- Reclaimed water would be obtained from the San Francisco Clean Water Department for use at the project site for construction activities, as required under City of San Francisco Ordinance No. 175-91.

NOISE

MEASURES PROPOSED AS PART OF THE PROJECT

- The construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance.

- The project sponsor would require that the project contractor predrill holes (if feasible based on soils) for poles to the maximum feasible depth to minimize noise and vibration from pole driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile.

- The project sponsor would consult with the Department of Public Works to determine the time when pile driving would cause the least disturbance to neighboring uses. The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance. This could require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2908, if pile driving during daytime hours is determined to be less disruptive to neighboring uses.

GEOLOGY/TOPOGRAPHY/HYDROLOGY

MEASURES PROPOSED AS PART OF THE PROJECT

*• A geotechnical investigation would be made for the project, and a detailed geotechnical report would be prepared by a California-licensed geotechnical engineer prior to commencement of construction. The project sponsor and contractor would follow the recommendations of the final report regarding any excavation and construction for the project.

*• As the residential project would include dewatering, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.

- As dewatering would be necessary, the final soils report would address the potential settlement and subsidence impacts of dewatering. The soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Section 306 of the San Francisco Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt the subsidence. The project sponsor would delay construction activities as necessary. Any cost for the survey and any necessary repairs to service under the street would be borne by the project sponsor.

*• The project sponsor would require the general contractor to install and maintain sediment traps in local stormwater intakes during the construction period to reduce the amount of sediment entering the storm drain/sewer lines, if this is found necessary by the Industrial Waste Division of the Department of Public Works.

- During dewatering of the residential tower site, the groundwater level in the site vicinity would be monitored. If lowering of the groundwater level in the site vicinity were to threaten wooden pile foundations, groundwater recharge would be used to stabilize the groundwater level.

D. ALTERNATIVES TO THE PROPOSED PROJECT

ALTERNATIVES NOT INCLUDED

Alternative site analysis was not conducted for this EIR. Adoption of the Downtown Plan by the City Planning Commission in 1984, and adoption of the implementing zoning ordinance by the Board of Supervisors in 1985 represented an effort to control and direct high-intensity development in the Downtown C-3 districts. The project site, within the C-3 District, allows for high-density residential development within the downtown. Only other C-3 District locations or Rincon Hill would allow for comparable-scale residential development to the proposed project, within or adjacent to San Francisco's downtown employment centers. Locating the residential building proposed for the project site at another C-3 District location or in the Rincon Hill area would not eliminate the main impacts of this project.

ALTERNATIVE A: NO PROJECT

This alternative would entail no change to the site. The proposed project would not be built. The parking lots located on the site would be retained. If the No-Project Alternative were implemented, none of the impacts associated with the project would occur. The environmental characteristics of this alternative would be generally as existing conditions. Transportation, noise and air quality impacts associated with construction of the project would not occur. Future transportation and air quality conditions as base conditions with cumulative development, but without the project, would continue to exist around the site.

ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 9:1 FAR

The project as proposed would include the transfer of about 200,800 sq. ft. of development rights from as-yet unidentified sites. This alternative would be a project without TDR on the north side of Natoma Street. The FAR would be about 9:1, compared to about 15.1:1 for the project. The office/retail building on the south side of Natoma Street with this alternative would contain about 3,230 gsf of retail space and about 18,400 gsf of office space, as with the project.

This alternative residential building would contain a total of about 406,900 gsf, of which about 296,200 gsf would be applicable to this building's FAR. The building would contain about 281,200 gsf of residential space (263 units) compared to about 444,400 gsf (509 units) with the project. The building would be 26 stories tall (about 269 ft. including mechanical penthouse) compared to 49 stories (about 475 ft. including mechanical penthouse) for the project. Total retail space would be about 12,000 gsf, compared to about 10,010 gsf with the project residential tower. Parking space would be about 31,000 gsf (99 spaces) compared to about 140,250 gsf (378 spaces) for the project residential tower. The open space requirement for this alternative would be a total of about 10,445 sq. ft., which would be provided on the site in a manner similar to the project.

This alternative would comply with all setback and bulk requirements. It would be about 206 ft. shorter than the project, and therefore would be less visible in mid- and long-range views. It would not require Conditional Use Authorization for dwelling unit density, and would not require Conditional Use Authorization for parking exceeding accessory amounts, compared to the project. Shadow from this alternative would be less than with the project, because no new shadow would be cast on the Pacific Gateway Plaza or Fremont Center Plaza compared to the project. This alternative would cause winds to exceed the 11 mph pedestrian comfort criterion at one of the 20 locations tested compared to none of the 20 locations tested with the project, and would cause the seven mph seating comfort criterion to be exceeded at one of two test locations within seating areas compared to neither of the two locations with the project. Total travel demand, air quality and energy impacts associated with on-site uses would be about 16 percent less than those of the proposed project, because of its smaller size. Traffic and air quality effects on local intersections would be less than with the project as this alternative would result in a total parking demand for about 247 fewer on-site parking spaces. The potential during construction for encountering subsurface hazardous materials would be less than the project, as the depth of excavation would be about 18 ft. less than for the project. Construction noise impacts would be of a shorter duration, as the construction period would be shorter. This alternative would provide employment for about 144 employees, compared to about 139 employees with the project. After subtracting housing demand generated, this alternative would contribute 256 units to the housing stock in San Francisco, compared to 502 units with the project.

ALTERNATIVE C: 18:1 FAR

This alternative would include the transfer of about 296,235 sq. ft. of development rights from as-yet unidentified sites compared to 200,800 sq. ft. of TDR for the project. The FAR for this alternative would be about 18:1, compared to 15.1:1 for the project. This alternative residential building would contain a total of about 686,760 gsf of space, of which about 592,470 gsf would be applicable to the buildings' FAR. As with the project, a six-story building with about 18,400 gsf of office space and about 3,230 gsf of retail space would be built on the south side of Natoma Street.

The alternative residential building would contain about 522,150 gsf of residential space (582 units) compared to about 444,400 gsf (509 units) with the project. The alternative would be 45 stories tall (about 500 ft. including mechanical penthouse) compared to 49 stories (about 475 ft. including mechanical penthouse) for the project. Total retail and lobby space on the residential site would be about 12,000 gsf, compared to about 10,010 gsf with the project. Parking space would be about 135,870 gsf (434 spaces), compared to about 140,250 gsf (378 spaces) with the project. The open space requirement for this alternative would be about 22,875 gsf, which would be provided on the site in a manner similar to the project. As with the project, this alternative would require exceptions to the requirements of the Planning Code for upper-level exterior setbacks from Minna Street, and would require Conditional Use Authorization for dwelling unit density. This alternative would require exceptions to lower tower and upper tower bulk limits; whereas the project would not.

Shadow from this alternative would be slightly greater than with the project. The extent of new shadow cast on the 100 First Street Plaza, Golden Gate University seating area, Pacific Gateway Plaza, and Five Fremont Plaza would be greater under this alternative. This alternative would cause winds to exceed the 11 mph pedestrian comfort criterion at five of the 20 locations tested compared to none of the 20 locations tested with the project, and would it cause the seven mph seating comfort criterion to be exceeded at one of the two test locations within seating areas compared to neither of the two test locations with the project. Total travel demand, air quality and energy impacts associated with on-site uses would be about seven percent

greater than those of the proposed project because of its larger size. Intersection service levels during the p.m. peak hour would be the same as with the project. Traffic and air quality effects on intersections in the greater project area would be more than with the project as this alternative would have parking demand for 72 more on-site parking spaces. The potential during construction for encountering subsurface hazardous materials during construction would be similar to the project, as a similar amount of excavation would be necessary. Construction noise and air quality impacts would be of a longer duration, as the construction period would be longer. This alternative would provide employment for about 150 employees, compared to about 139 employees with the project. After subtracting housing demand generated, this alternative would contribute 575 units to the housing stock in San Francisco, compared to 502 units with the project.

ALTERNATIVE D: OFFICE AND RETAIL BUILDING

This alternative would develop an office and retail building on the residential building site of the proposed project. The residential project as proposed would include the transfer of about 200,800 sq. ft. of development rights from as-yet unidentified sites. This alternative would be a building requiring 217,315 sq. ft. of TDR. The FAR of this alternative would be about 15.6, compared to about 15.1:1 for the project. This alternative building would contain a total of about 604,450 gsf of space, of which about 513,550 gsf would be applicable to the FAR. As with the project, a six-story building with about 3,230 gsf of retail space and about 18,400 gsf of office space would be built on the south side of Natoma Street.

The office tower would contain about 441,400 gsf of office space compared to about 444,430 gsf of residential space with the project. Total retail space on the office building alternative site would be about 12,000 gsf, compared to about 10,010 gsf with the project. Parking under this alternative would be about 140,250 gsf (652 valet parking spaces) compared to about 140,250 gsf (378 spaces) with the project. The open space requirement for this alternative would be about 12,310 sq. ft., which would be provided on the site in a ground-floor atrium accessible to the public and fourth-floor deck. As with the project, this alternative would be about 475 ft. tall including mechanical penthouse). As with the proposed project residential building, this alternative would require exceptions to the Planning Code requirements for

upper-level setbacks from Minna Street, and would require Conditional Use Authorization for parking in excess of parking defined as accessory parking under the City Planning Code.

Impacts on views, the shadow and wind environment, urban design and architectural resources, and growth inducement would be the same as for the proposed project. This alternative would have 274 more parking spaces on-site, and a total parking demand for 280 fewer spaces, than with the project resulting in an excess parking capacity of about 246 equivalent daily spaces. Traffic, air quality and energy impacts associated with on-site uses would be greater those of the proposed project because travel demand with office space would be about 52 percent greater than with the residential space of the project. Traffic and air quality effects on local intersections would be greater than the project. Construction noise and air quality impacts for this alternative would be similar to that of the project. The potential during construction for encountering subsurface hazardous materials would be the same as with the project, as a similar amount of excavation would be necessary. This alternative would provide employment for about 1,810 employees as compared to 139 with the project. It would generate a housing requirement of 177 new dwelling units in San Francisco as compared to seven with the project under the Office Affordable Housing Production Program. This alternative would result in greater growth-inducing impacts than the project, due to the greater number of people at the site than with the project.

III. PROJECT DESCRIPTION

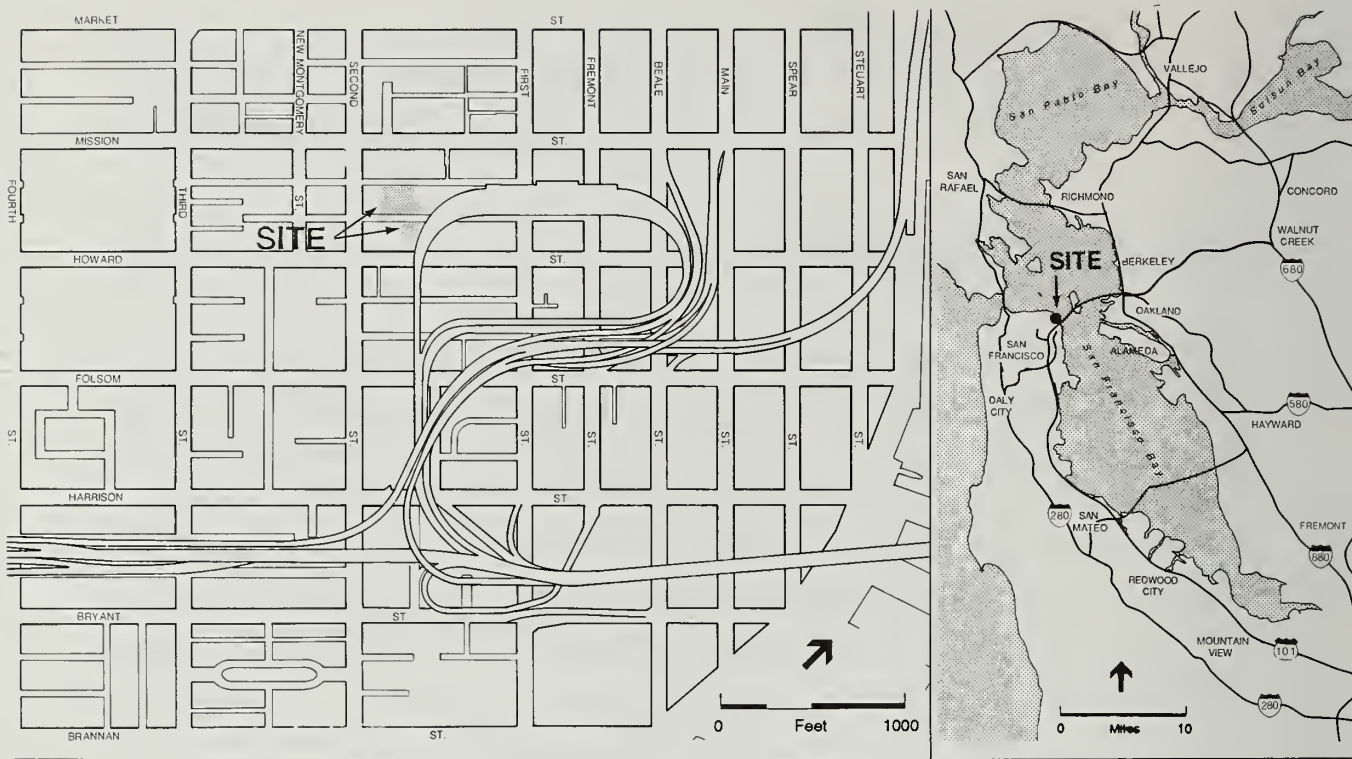
A. PROJECT SPONSOR'S OBJECTIVES

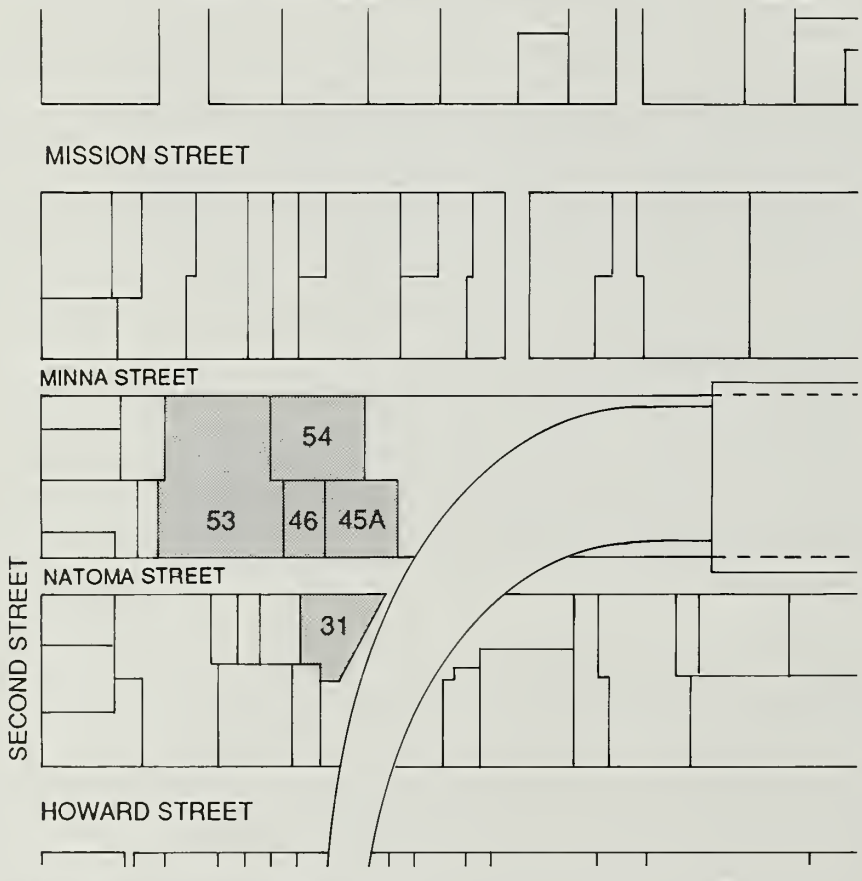
PCI Developments Corporation proposes to construct a 49-story, 475-foot-tall, 509-unit, residential building with ground-floor retail space on a site fronting the north side of Natoma Street, and an office and retail building on a site fronting the south side of Natoma Street, between First and Second Streets. The project sponsor's objectives are to develop a high-quality rental residential development, with associated resident facilities on-site, in proximity to one of the City's emerging prime office space locations and the Transbay Terminal transit center. The project architect is Heller and Leake of San Francisco.

B. PROJECT LOCATION

The proposed project site would consist of two sites separated by Natoma Street, between First and Second Streets (see Figure 1). The proposed residential building site at 72-82 Natoma Street is mid-block on the north side of Natoma Street, through the block to the south side of Minna Street. The 32,915 sq. ft. residential building site is Lots 45A, 46, 53 and 54 of Assessor's Block 3721. The residential building site contains a 32,900 sq. ft. attendant-controlled parking lot with parking for approximately 134 vehicles. That site is in the C-3-0 (Downtown Office) Use District and 500-S and 550-S Height and Bulk Districts. The basic permitted floor area ratio (FAR) is 9:1 and the maximum allowable FAR, including transferable development rights is 18:1. The FAR of the residential project would be about 15.1:1, and would require about 200,800 sq. ft. of TDR.

The proposed office/retail building site at 71 Natoma Street is on the south side of Natoma Street, directly south of the residential building site, on Lot 31 of Assessor's Block 3721. The 4,580 sq.-ft. building site currently contains a 16-space parking lot leased to Dahl-Beck Electronics. That site is in the C-3-0 (SD) (Downtown Office Special Development) Use District and 450-S Height and Bulk District. The basic permitted FAR is 6:1 and the maximum FAR, including TDR, is 18:1. The FAR of the proposed office building would be about 4.12:1.





LEGEND

PROJECT SITE
Assessor's Block 3721
Lots 31, 45A, 46, 53 and 54

0 Feet 200

Natoma Mews

SOURCE: Environmental Science Associates, Inc.

Figure
Project Locatio

C. PROJECT CHARACTERISTICS

Project characteristics are summarized in Table 1, pp. 24 - 25. The project would consist of a new residential tower, ground-floor retail space, off-street parking, private and public open space, and a new office/retail building. The residential tower would be a 49-story approximately 475-foot tall (including a one-story 17-foot tall roof-top mechanical level) and would contain a total of about 640,430 gross sq. ft. (gsf). The office/retail building would be constructed on a site south across Natoma Street from the residential tower site, and would be a six-story, approximately 80-foot tall building, containing a total of about 22,700 gsf.

RESIDENTIAL PROJECT

The proposed residential building would contain approximately 140,250 gsf of parking (excluding ramps) to accommodate approximately 406 vehicles; three subsurface levels would contain about 204 marked self-park stalls providing parking for 232 cars (28 stalls would be oversized, accommodating two cars parked in tandem), and two above-grade parking levels would contain parking for about 174 vehicles under tandem valet operation. The 16 handicapped parking spaces required would be located on the subsurface levels, as part of the self-park supply. The ground-floor would contain about 10,010 gsf of retail space (including a "freestanding" retail structure), and about 12,790 gsf of lobby area, leasing office, mechanical and storage space, and freight loading area. The second and third building levels would contain parking. The podium level (fourth building level above grade) would contain about 11,080 gsf of space in a health club and about 6,160 gsf of open space. Approximately 444,430 gsf of residential uses are proposed (a total of 509 units). A total of 497 units would occupy the fifth through 49th building levels above grade, and 12 residential townhouse units would be located separately on three floors above the podium level. The residential units would be an average size of about 700 to 800 sq.ft.; about two-thirds of the units would be studios or one bedrooms, and about one-third of the units would be two-bedrooms (a few three-bedroom units would also be provided). A mechanical penthouse would contain about 5,590 gsf of space atop the residential building. Floor plans, a building cross-section, and elevations are shown in Figures 2 through 9, pp. 26 through 33. The ground-floor retail and lobby area of the tower would open onto a new through street on the site, connecting Natoma and Minna Streets. Ground-floor retail space in the tower would also open onto Natoma and Minna Streets. The freestand retail structure (containing about 1,600 gsf.) across the

TABLE 1: PROJECT CHARACTERISTICS

Number of Stories Of New Construction /a/		Height and Bulk Measurements (ft.) and FAR		
RESIDENTIAL (Above Grade)			**RESIDENTIAL** Allowable	Proposed
Retail/Lobby/Loading	1	Height	500-550 /b/	475 /c/
Parking	2	Lower Tower		
Podium/Health Club	1	Length	160	118
Residential (Tower)	44 (497 units)	Diagonal	190	144
Mechanical Level	1	Upper Tower		
		Length	130	108
		Diagonal	160	118
Total Stories /a/	49	Volume Reduction	7% /d/	22%
Residential (Townhouse)	3 (12 units)			
Site Size	32,915 sq. ft.	Basic FAR of 9:1 FAR with TDR /e/ up to 18:1		FAR: 15:1
OFFICE/RETAIL (Above Grade)			**OFFICE/RETAIL** Allowable	Proposed
Retail/Lobby/Mechanical	1	Height	450	80
Office	5	Lower Tower		
		Length	160	78
Total Stories	6	Diagonal	190	101
Site Size	4,580 sq. ft.	Basic FAR of 6:1 FAR with TDR up to 18:1		FAR: 4.1:1

Proposed Uses	Area Applicable To FAR (gsf)		Total Gross Floor Area (gsf)	
	RESIDENTIAL TOWER	**OFFICE BUILDING**	**RESIDENTIAL TOWER**	**OFFICE BUILDING**
Subsurface:				
Parking	4,580	0	97,500 /f/	0
Above Grade:				
Parking	39,580	0	42,750 /f/	0
Ground Floor				
Retail			10,010 /g/	3,230/g/
Lobby/Mechanical/Storage	0	0	12,790 /g/	1,100/g/
Ground Level Open Space	0	0	9,900 /g/	0
Office	0	17,790	220	18,380
Health Club	11,010	0	11,080	0
Podium Open Space	560 /h/	0	6,160	0

(Continued)

TABLE 1: PROJECT CHARACTERISTICS (Continued)

Proposed Uses	Area Applicable To FAR (gsf)		Total Gross Floor Area (gsf)	
	RESIDENTIAL TOWER	OFFICE BUILDING	RESIDENTIAL TOWER	OFFICE BUILDING
Above Grade (Continued):				
Residential	441,310 /i/	0	444,430	0
Mechanical Penthouse	0	0	5,590 /g/	0
TOTAL	497,040	17,790	640,430	22,710

/a/ Excluded from total number of stories are three subsurface levels containing parking, the residential townhouse units and freestand retail.

/b/ The residential tower site is located in a 500-S Height and Bulk District and a 550-S Height and Bulk District.

/c/ Including 17-foot, six-inch tall rooftop mechanical level and three-foot, six-inch tall decorative parapet.

/d/ The volume reduction applies over 160 ft.; seven percent is the minimum required.

/e/ To permit the floor area ratio (FAR) on the site to exceed the basic 9:1, about 200,800 sq. ft. of transferable development rights (TDR) would be transferred from as-yet unidentified sites under Section 128 of the City Planning Code. The FAR of the combined development (receiver) and preservation (sender) lots would not exceed 9:1, if both projects were in the same Use District.

/f/ Excluding entry and exit ramps, there would be a total of about 140,250 gsf of parking space (22 percent of the gross floor area of the residential project). Under Section 204.5(c) of the City Planning Code, parking area up to 150 percent of the number of spaces required by the Code, where the requirement is three or more spaces, and seven percent of the gross floor area of uses without parking requirement may be considered accessory parking and thereby excluded from the FAR calculation. For the project, 127 spaces would be required for 509 residential units (127 x 1.5 = 191 spaces), plus 7 percent of 11,010 gsf for health club = 193 spaces accessory parking. A total of about 44,160 gsf of proposed parking area would be non-accessory and therefore applicable to FAR, including all 174 valet operated spaces proposed and about 11 independently accessible spaces out of a total 204 marked, independently-accessible spaces. (about 32,030 gsf per three below-grade parking levels, times three equals 96,090 gsf, subtracting about 11,230 sq. ft. (about 3,740 sq. ft. per level) for elevator and ramp areas equals about 84,860 sq. ft., divided by 204 spaces equals about 416 sq. ft. per space).

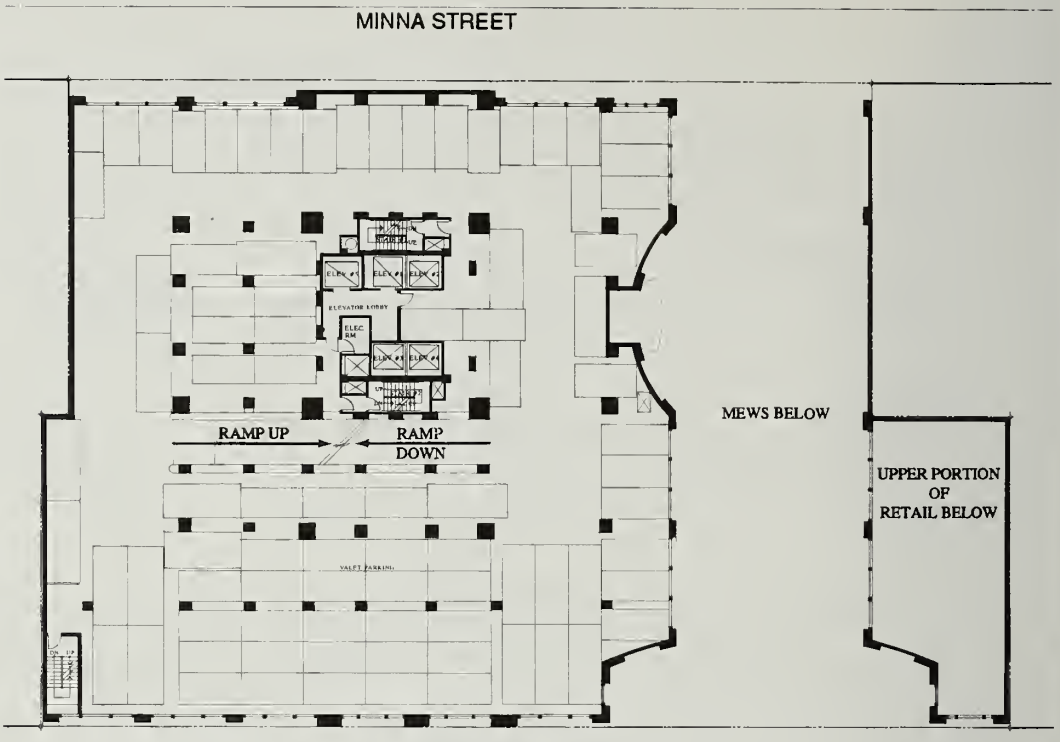
/g/ In Section 102.9(b) 1-16 of the City Planning Code, exclusions from gross floor area in the C-3-0 and C-3-0 (SD) districts are defined. Examples are convenience, retail and personal service space (not to exceed 5,000 occupied sq. ft. per use and in total not to exceed 75 percent of ground floor interior and open space area), ground-floor pedestrian circulation and building service space, and mechanical and building storage space.

/h/ In Section 102.9(a)6 of the City Planning Code, gross floor area applicable to FAR includes floor space in open or roofed porches, arcades or exterior balconies located above the ground floor or at the first floor of occupancy, if used as the primary access to interior space; podium-level access to the townhouse units would utilize 560 sq. ft. of the podium-level open space.

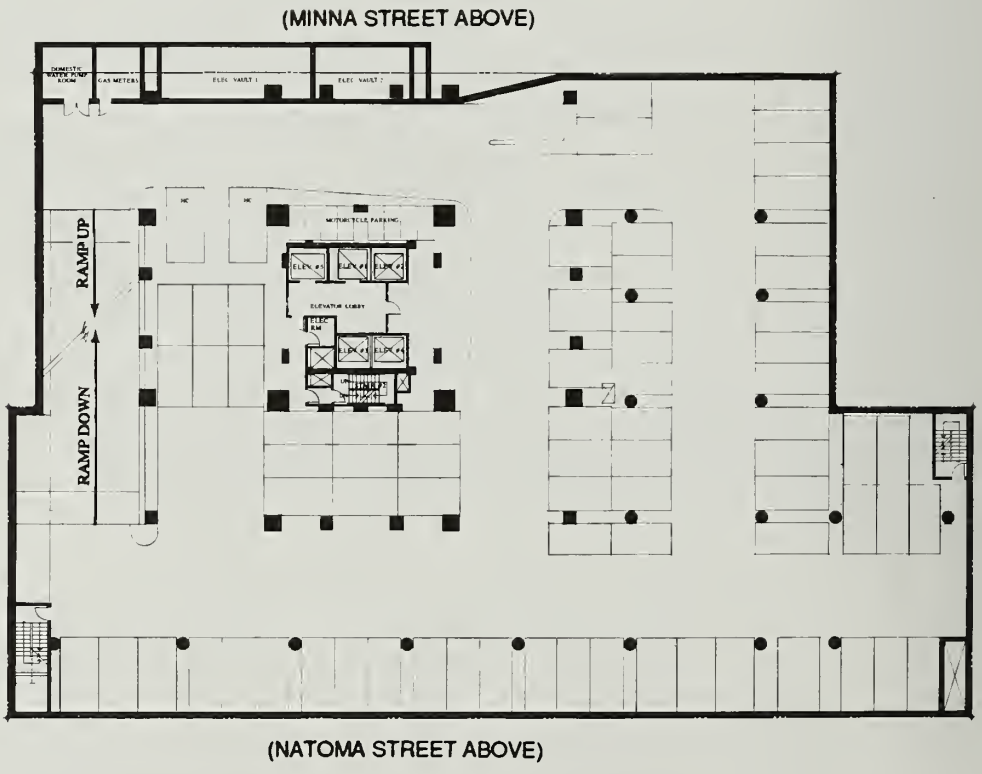
/i/ Residential floor area applicable to FAR calculation excludes from gross floor area mechanical space on each of the tower residential floors, as set forth in Section 102.9(b)(4)of the City Planning Code.

SOURCE: San Francisco City Planning Code; Heller and Leake; and Environmental Science Associates, Inc.

Upper Parking Levels
P1 & P2



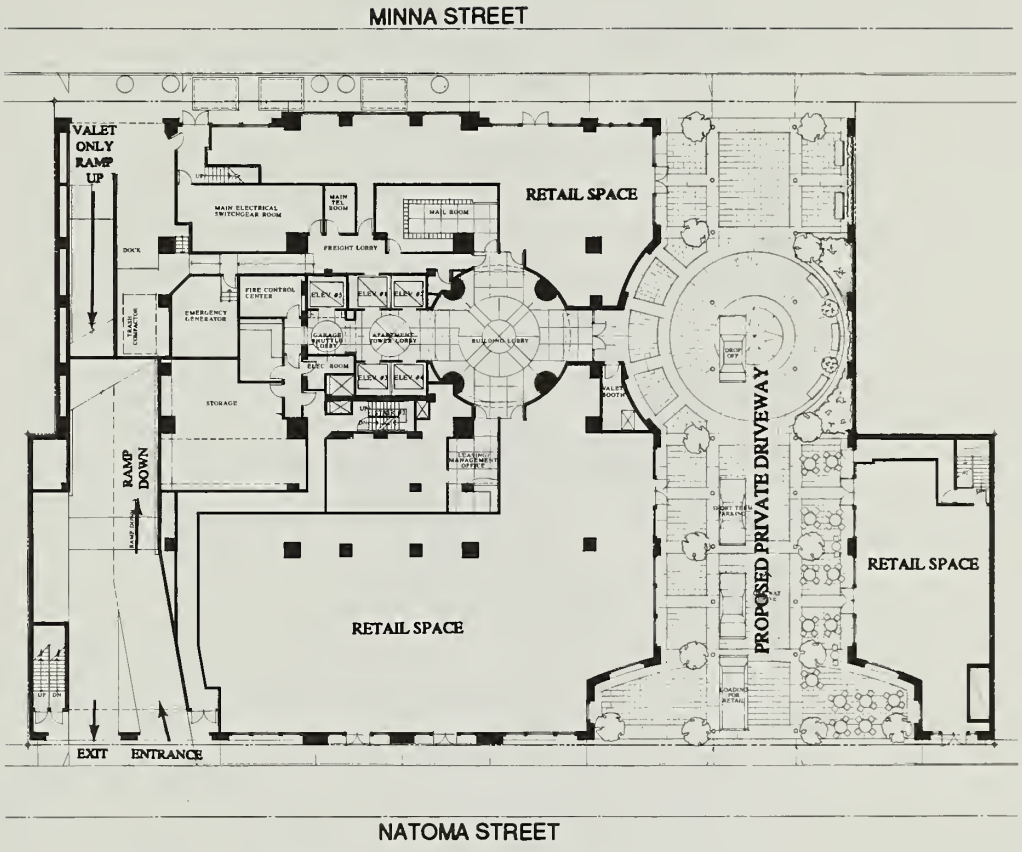
Below Grade Parking
(B-1 shown;
B-2, B-3 similar)



SOURCE: Heller and Leake

Natoma Mews ■

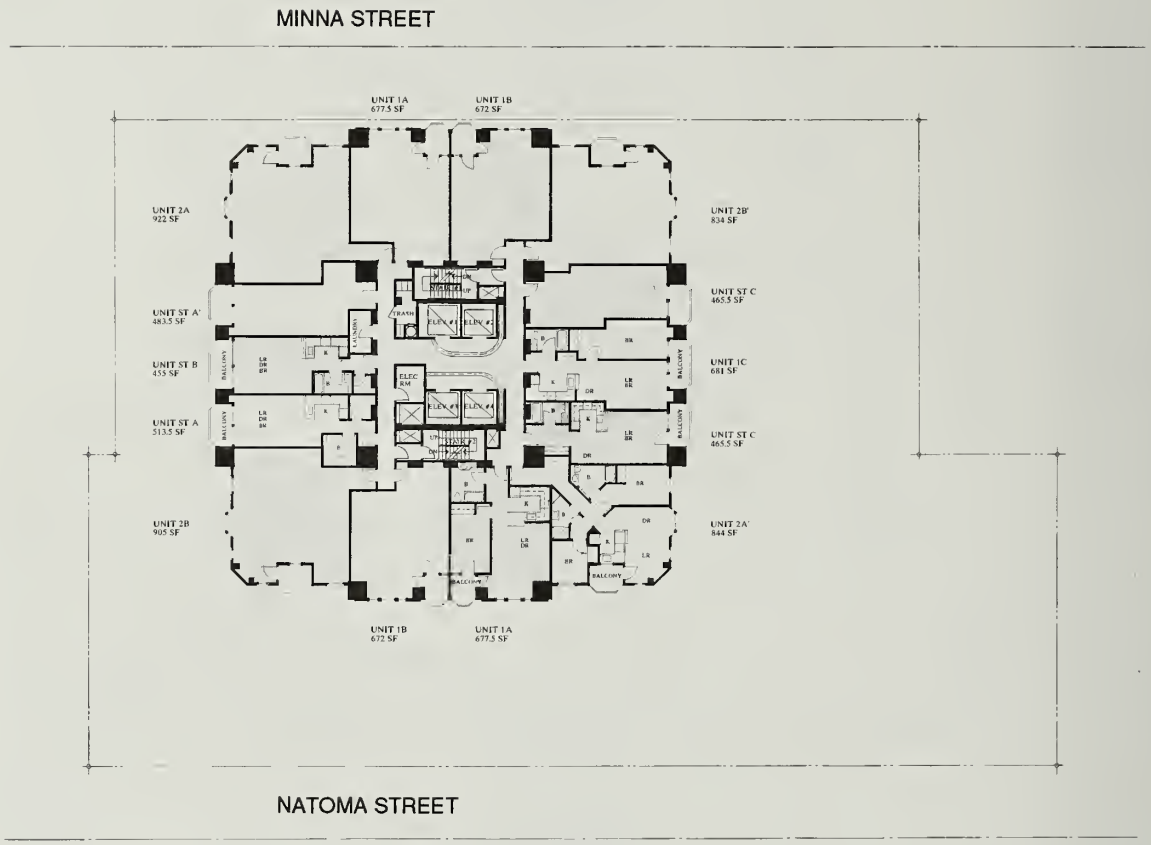
Figure 2
Parking Level Plans



SOURCE: Heller and Leake

Natoma Mews ■

Figure 3
Ground Floor Plan



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Feet

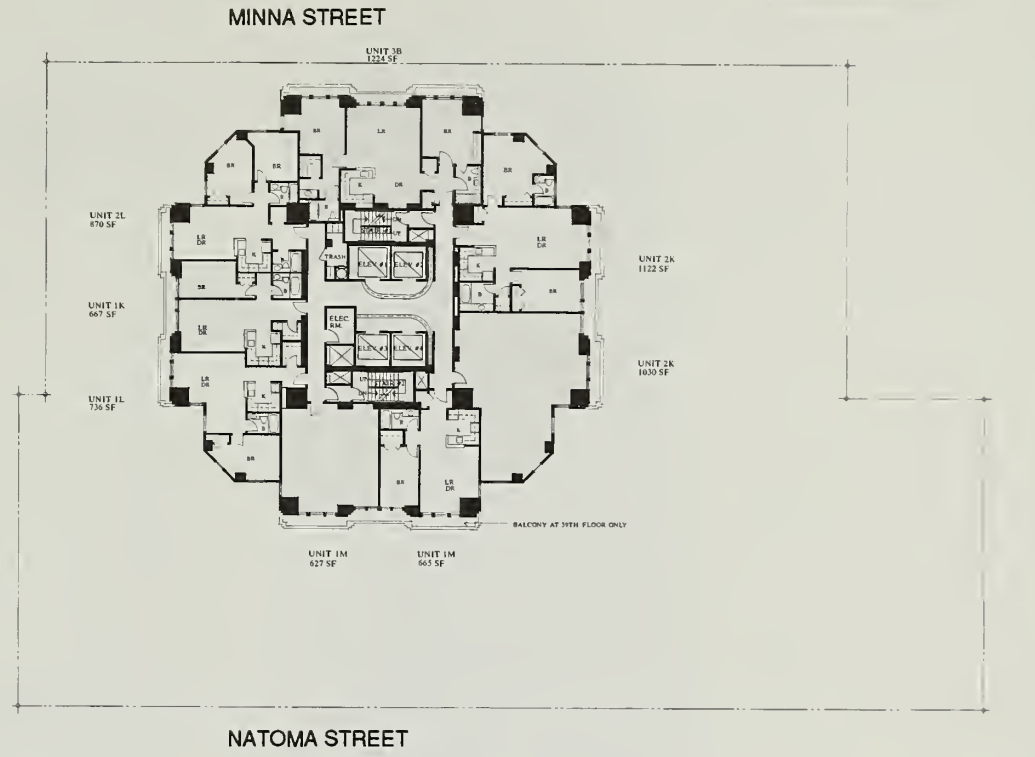
SOURCE: Heller and Leake

Natoma Mews

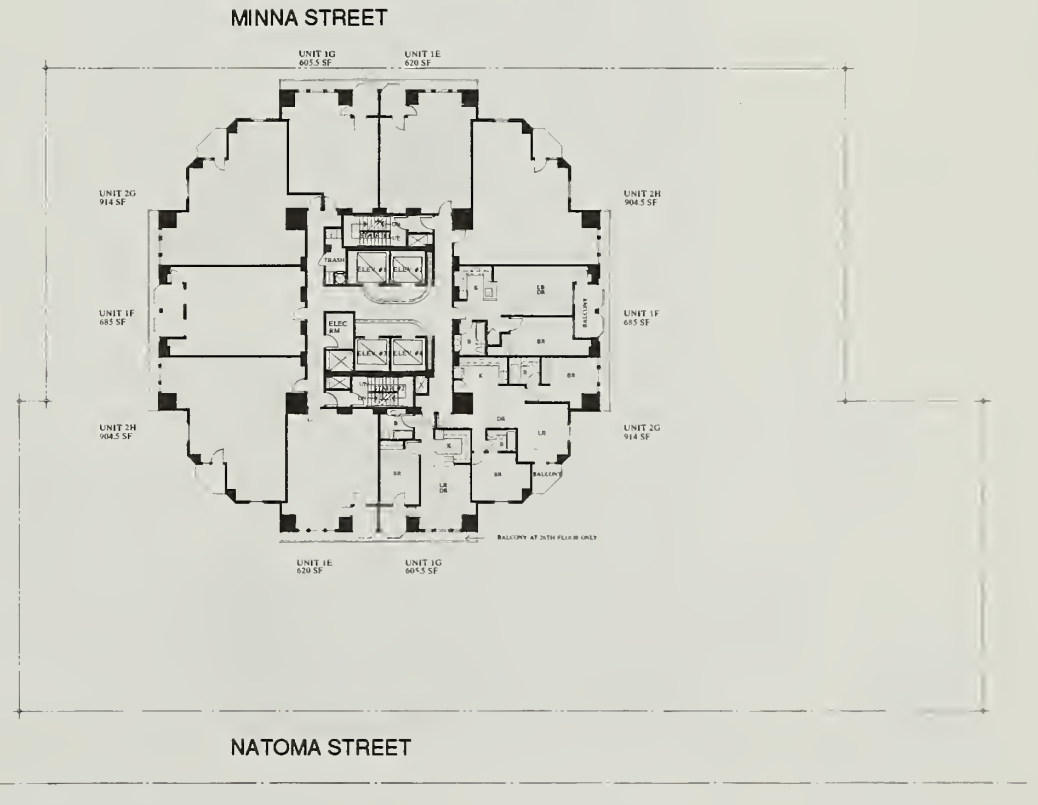
Figure 4

Typical Lower Tower Floor Plans (Floors 2 – 20)

Upper-Level Tower
(Floors 39-43)



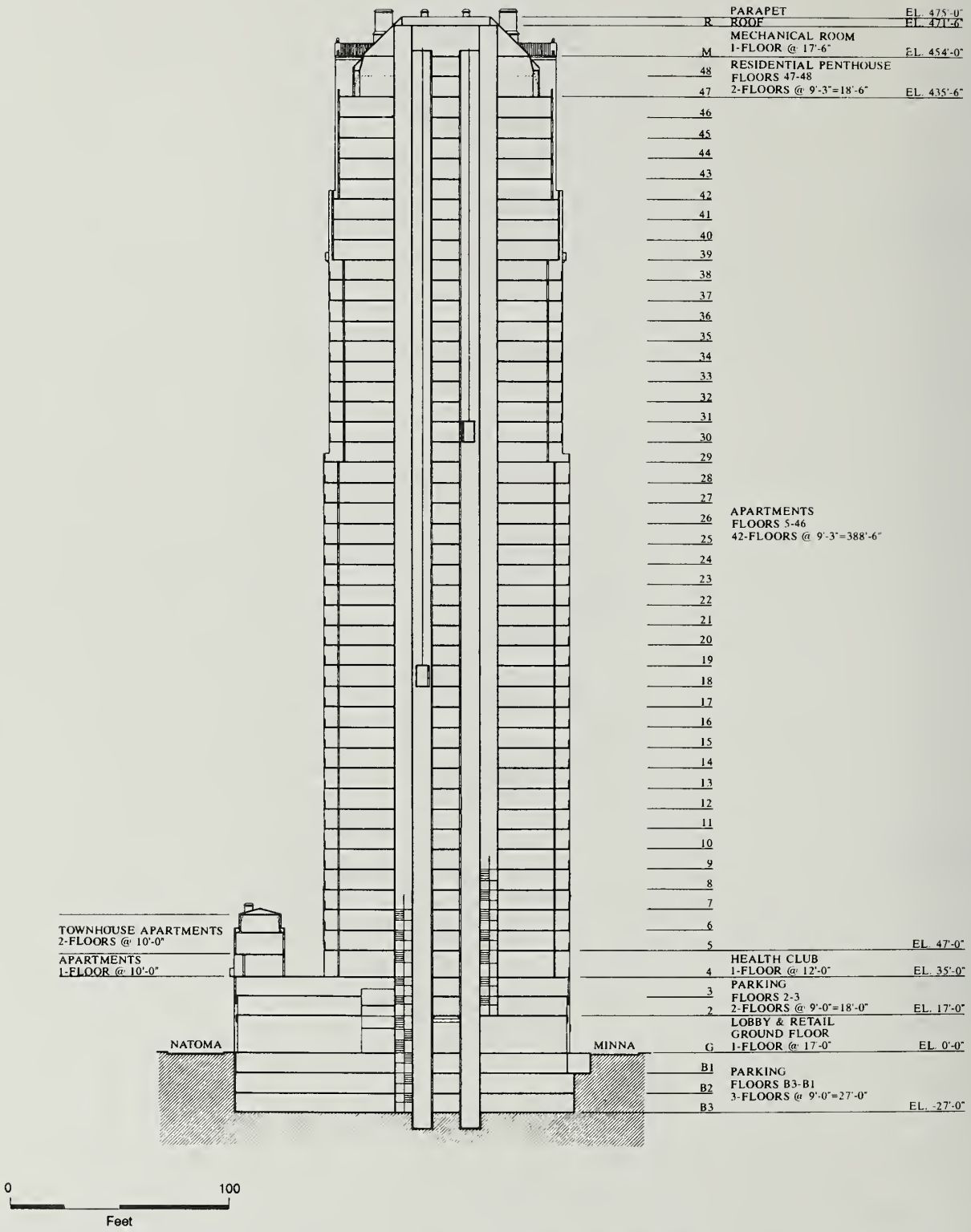
Mid-Level Tower
(Floors 26-36)



SOURCE: Heller and Leake

Natoma Mews ■

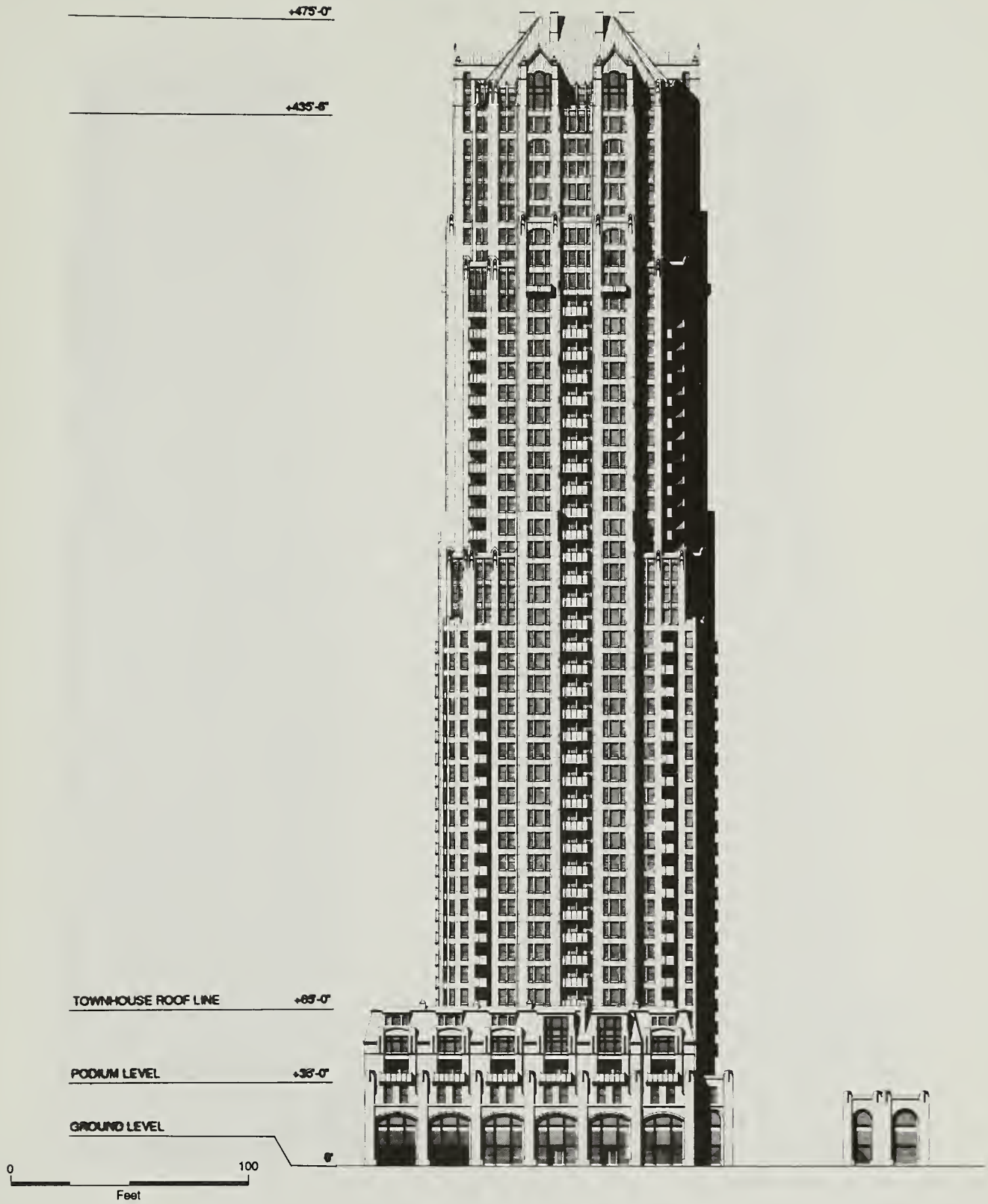
Figure 5
Typical Upper Floor Plans
(Floors 26 – 36 and 39 – 43)



SOURCE: Heller and Leake

Natoma Mews ■

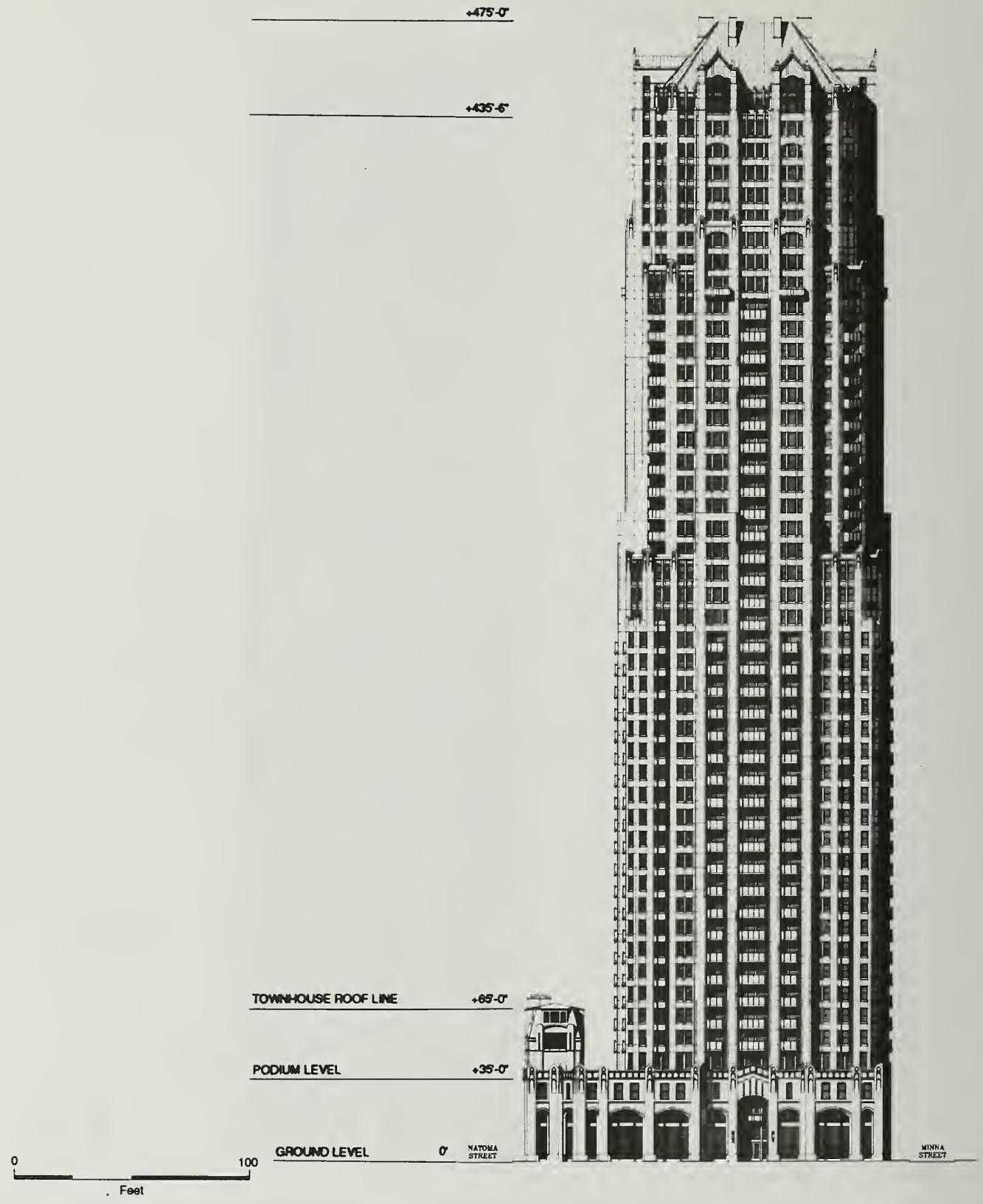
Figure 6
Mews Cross Section



Natoma Mews ■

SOURCE: Heller and Leake

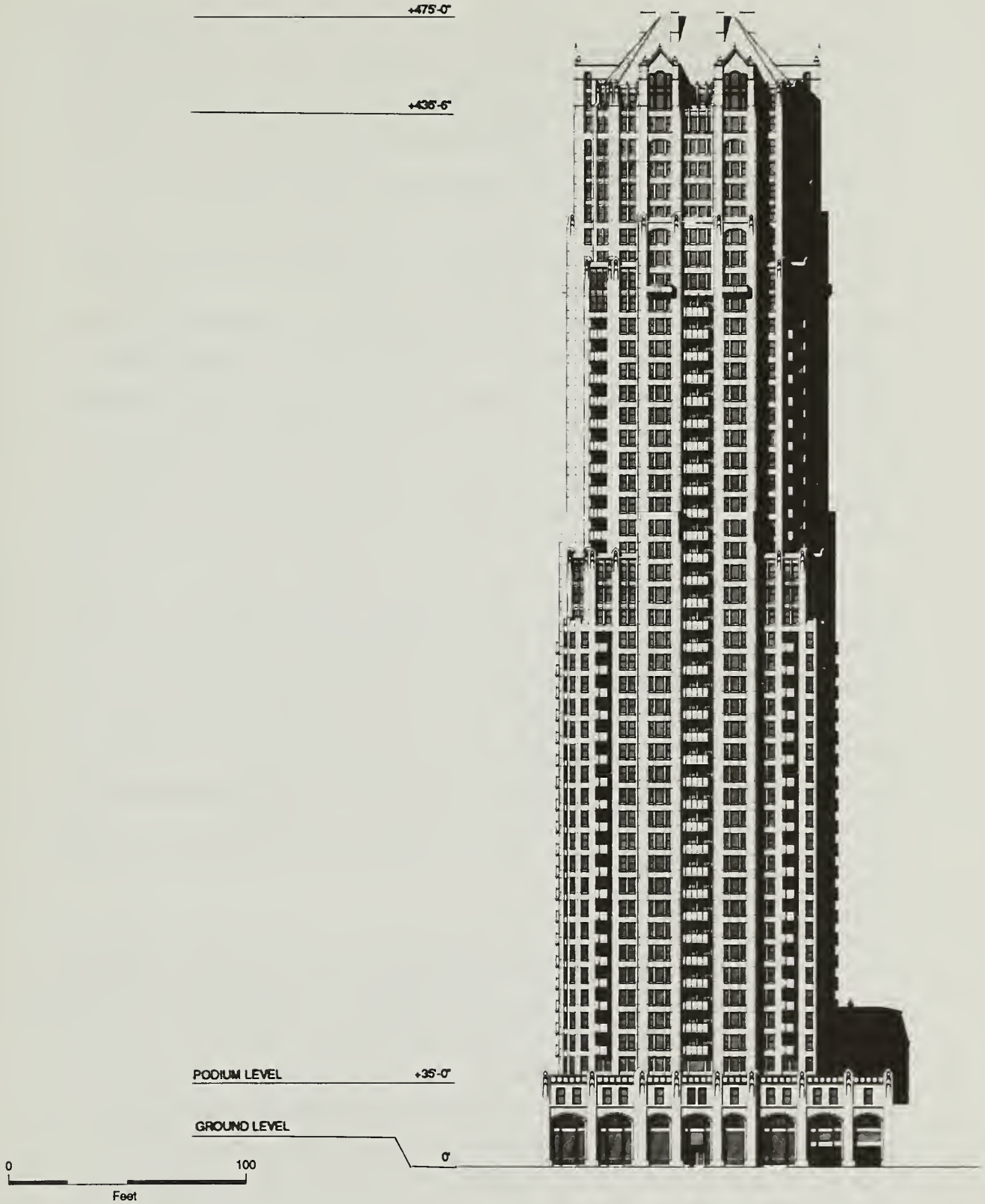
Figure 7
Natoma Street Elevation



Natoma Mews ■

SOURCE: Heller and Leake

Figure 8
Mews Elevation



SOURCE: Heller and Leake

Natoma Mews ■

Figure 9
Minna Street Elevation

new through-driveway from the residential tower would open onto Natoma Street and the proposed through street. The ground floor would also contain one freight-loading space, with access from and exit onto Minna Street. The ground-level access for the three subsurface parking levels would be from Natoma Street; the ground-level access for the two above-grade parking levels would share one ramp, at Minna Street.

The base of the residential tower, as defined by the Downtown Plan (base zone height not to exceed 1.25 times the width of the widest abutting street, or 50 ft., whichever is greater) would include above-grade levels one (ground-floor) through three, and would be a height of about 38 ft. including a three-foot parapet. The lower tower would consist of floors four (podium level) through 29, with a maximum average floor size of about 11,170 gsf. The upper tower would begin at the 30th floor, with an average floor size of about 8,680 gsf. The residential tower would be set back on the 24th and 27th floors at all four corners, on the 29th floor, at the 40th floor at all four corners, and at the 42nd floor.

The residential project site is in the C-3-O (Downtown Office) Use District and 500-S and 550-S Height and Bulk Districts. The basic permitted FAR for the site is 9:1. Development up to a maximum FAR of 18:1 is allowable through Transfer of Development Rights (TDR) from a site or sites in the C-3-O District that contain architecturally significant buildings with unused potential floor area. The FAR of the residential project would be about 15.1:1 on the 32,915 sq. ft. site, and would require about 200,800 gsf of TDR. The project sponsor has not yet identified sites from which development rights would be sought. The overall FAR for the residential development and preservation lots would be 9:1.

The residential project would require the removal of the existing 32,900 sq. ft. parking lot. The one employee presently working at the parking lot would displaced. Total net changes in floor area for the residential site would be an increase of about 444,430 gsf of residential space, an increase of about 10,010 gsf of retail space, an increase of about 11,080 gsf of health club space, an increase of about 16,060 gsf of open space (of which about 9,900 sq. ft. would be public open space at the ground floor as illustrated in Figure 3 on p. 27), and an addition of about 107,350 gsf of parking (an increase of 228 parking spaces on the site). All proposed uses except parking would be new uses to the site. The residential project would incorporate art as required by the Downtown Plan, within the pedestrian lobby area, and would provide both public open space (9,900 sq. ft. outdoors and the ground floor) and private common open space (6,160 sq. ft. outdoors at the podium level).

OFFICE PROJECT

The proposed office building would contain approximately 3,230 gsf of retail space and approximately 1,100 gsf lobby/support space on the ground floor, and about 18,380 gsf of office space on the second through sixth floors (see Figure 10, p. 36). The ground-floor retail and lobby areas would open onto Natoma Street. The average floor size of the office levels would be about 3,680 gsf.

The base of the office building, as defined by the Downtown Plan (height not to exceed 1.25 times 50 ft., or 62.5 ft.) would consist of levels one (ground floor and two, to a height of about 30 ft. The third through sixth levels would comprise the lower tower as defined by the Downtown Plan.

The office building site is in the C-3-0 (SD) (Downtown Office Special Development) Use District and a 450-S Height and Bulk District. The basic permitted FAR for the site is 6:1, and the FAR of the office project would be about 4.1:1 on the 4,580 sq. ft. site. The office building site currently contains a 16-space parking lot for the adjacent Dahl-Beck Electric Co. All proposed uses would be new uses on that site; an increase of about 18,380 gsf of office and an increase of about 3,230 gsf of retail space would occur on the office building site.

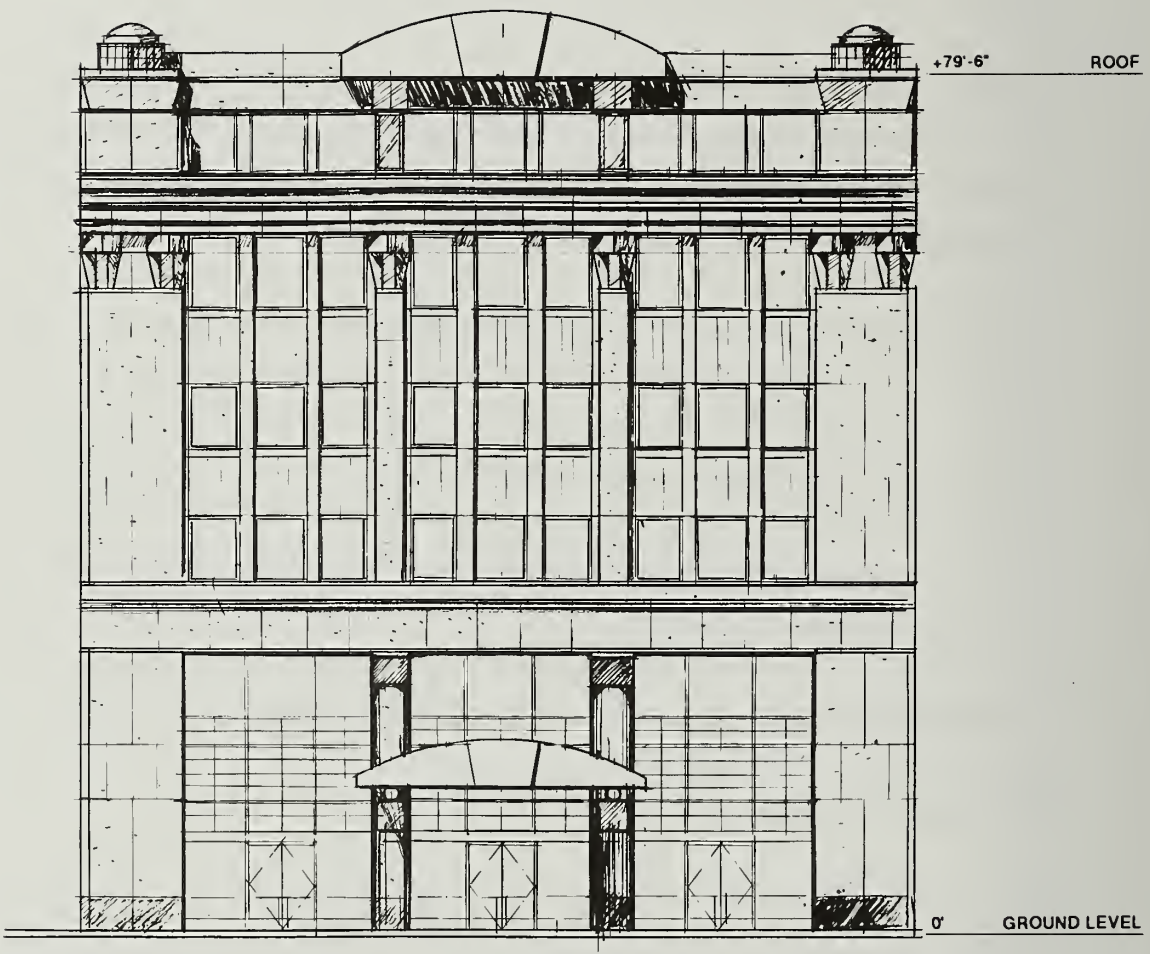
D. PROJECT SCHEDULE, COST AND APPROVAL REQUIREMENTS

PROJECT SCHEDULE AND COST

The project sponsor expects environmental review, project review and detailed design to be completed in early-1992. If the project were approved and building permits issued, construction of the entire project would take about 30 months. Initial occupancy is anticipated about 32 months from the start of construction. Estimated construction cost of the entire project would be about $70,000,000 (1991 dollars), including excavation, building shell and interior finishing.

APPROVAL REQUIREMENTS

Following a public hearing before the City Planning Commission on the Draft EIR, responses to written and oral comments will be prepared. The EIR will be revised as



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Feet

SOURCE: Heller and Leake

Natoma Mews ■

Figure 10
Office/Retail Building
Natoma Street Elevation

appropriate and presented to the City Planning Commission for certification as to accuracy, objectively and completeness. No permits may be issued before the Final EIR is certified.

On November 14, 1986, the voters of San Francisco passed Proposition M, the Accountable Planning Initiative, adopted as Section 101.1 of the City Planning Code. Proposition M establishes eight Priority Policies. These policies are: preservation and enhancement of neighborhood-serving retail uses; protection of neighborhood character; preservation and enhancement of affordable housing; discouragement of commuter automobiles; protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; earthquake preparedness; landmark and historic building preservation; and protection of open space. Prior to issuing a permit for any project which requires an Initial Study under CEQA or adopting any zoning ordinance or development agreement, the City is required to find that the proposed project or legislation is consistent with the Priority Policies and is consistent with the City's Master Plan. The City Planning Commission, in its decision regarding the proposed project approval or disapproval, would make a determination of the project's conformance with the Priority Policies.

MASTER PLAN

As stated above, the project would be reviewed by the City Planning Commission in the context of applicable objectives and policies of the San Francisco Master Plan. Some of the key objectives and policies relevant to the proposed project include the following.

Policy 2 of Objective 1 of the Residence Element and Policy 2 of Objective 7 of the Downtown Plan Element seeks to, "facilitate the conversion of under used industrial and commercial areas to residential use." Policy 2 of Residence Element Objective 2 encourages, ". . . higher residential density in areas adjacent to downtown and in neighborhood commercial districts where higher density will not have harmful effects" and Objective 7 of the Downtown Plan Element seeks to "expand the supply of housing in and adjacent to downtown." Policy 3 of Objective 5 of the Residence Element promotes ". . . inclusion of low and moderate income units in new housing development."

Policy 7 of Objective 1 of the Transportation Element of the Master Plan seeks to ". . . reduce peak travel demand." Policy 1 of Objective 7 of the Transportation Element seeks to, "widen sidewalks where intensive commercial, recreational or institutional activity is present and where residential densities are high."/4/

Policy 4 of Transportation Element Objective 10 calls for large developments to, ". . . allocate a portion of the off-street parking spaces for compact automobiles." Policy 1 of Objective 12 of the Transportation Element seeks to "regulate off-street parking in new housing so as to guarantee needed spaces without requiring excesses. Encourage low auto ownership in neighborhoods that are well served by transit and are convenient to neighborhood shopping."

The Urban Design Element of the San Francisco Master Plan contains objectives which, among other considerations, would be used to evaluate the design of the proposed project.

Under Section 157 of the City Planning Code the project sponsor would apply for a Conditional Use Authorization for parking exceeding the amount of off-street parking classified as accessory parking (150 percent of base requirement of 127 spaces, or a total of about 191 spaces plus seven percent of health club space, or about 770 gsf for two parking spaces). The proposed project would provide a total of 378 parking (able to accommodate a total of 406 vehicles with 28 vehicles parked in tandem); about 185 spaces would require Conditional Use Authorization including all 174 stalls to be under valet operation and 11 independently-accessible stalls.

The project would require approval under Section 309 of the City Planning Code, Permit Review in C-3 Districts, which governs the review by the City Planning Commission of project authorization and building and site permit applications in C-3 Districts (see Table 3 on pp. 82 to 85. Under Section 309, the project sponsor would request an exception to City Planning Code Section 132.1(c). The proposed project would require an exception to the requirements of Section 132.1(c), to provide less than the required upper-level setback from the property line abutting Minna Street. The project would provide one full-size freight loading space and two van spaces within the residential building (an equivalent total of two full-size freight loading spaces). The project sponsor intends to provide a 35 ft. yellow curb zone within the private driveway area, adjacent to the southeast corner of the private street

intersection with Natoma Street, to accommodate freight loading vehicles for the proposed freestanding retail building and the office/retail building. With the provision of the loading space on the private thoroughfare, the project would satisfy the City Planning Code requirement for provision of on-site loading spaces. The residential project would require Conditional Use Authorization under Section 215(b), to develop residential uses at a greater density on the site than one dwelling unit per 125 sq. ft. lot area. Under Section 309, the City Planning Commission would also evaluate artwork (Section 149).

The City Planning Commission would hold a public hearing to consider the project application under Section 309, the requests for exceptions, and the request for Conditional Use Authorization. The City Planning Commission would adopt a motion approving, approving with conditions, or disapproving the project. Requirements for approval of the requested Conditional Use Authorization would include a finding by the Commission that the project would not be detrimental to the general welfare, and would affirmatively promote applicable objectives of the Master Plan. If the project were to be approved by the City Planning Commission, the project sponsor must obtain demolition, building, and related permits from the Central Permit Bureau of the Department of Public Works. An application for a Site Permit for the project has not been filed to date.

A. LAND USE AND ZONING

LAND USE

The project site is on the block bounded by First Street on the east, Mission Street on the north, Second Street on the west, and Howard Street on the south. Natoma and Minna Streets are minor east-west streets in that block. The Transbay Transit Terminal is adjacent to the east of both the residential and office project sites. The residential site north of Natoma Street currently contains a 134-space valet parking lot. The office building site south of Natoma Street is a 16-space parking lot. The project site is about one and one-half blocks south of Market Street, and approximately two and one-half blocks north of the James Lick Freeway (I-80).

To the east of the project site are surface parking lots underneath elevated ramps serving the Transbay Transit Terminal (see Figure 11, p. 41). To the west is the Second Street corridor, characterized by low-scale (three- to six-story) older buildings recently rehabilitated for office uses and ground-floor retail uses. Adjacent to the south of the site are older one- to five-story buildings with primarily office, and light manufacturing uses. Adjacent to the north are low-scale (five to eight stories) older buildings containing office uses and ground-floor retail uses; existing new development within one block of the site includes the 100 First Street office building, Five Fremont office building and Golden Gate University.

The site vicinity has historically supported printing, wholesaling and light-industrial uses. Through conversion and new construction, the area is becoming increasingly office oriented although examples of the original use types remain. The area differs from the Financial District north of Market Street in density, diversity of use and scale of development. However, the area was designated under the Downtown Plan for high-rise office development. Located in the vicinity of the project are the sites of high-rise office buildings either under construction or approved. These include 101 Second Street (under construction adjacent to the northwest of the project site); 222 Second Street (under construction about one block south of the project sites);

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 11
Site Vicinity Land Use

524 Howard Street (approved for construction one-half block southeast of the project site); and 299 Second Street (approved for construction on a site about one and one-half blocks south). Thus, over time the area is likely to reflect increased density of use and a scale of development that is more comparable to the neighboring Financial District.

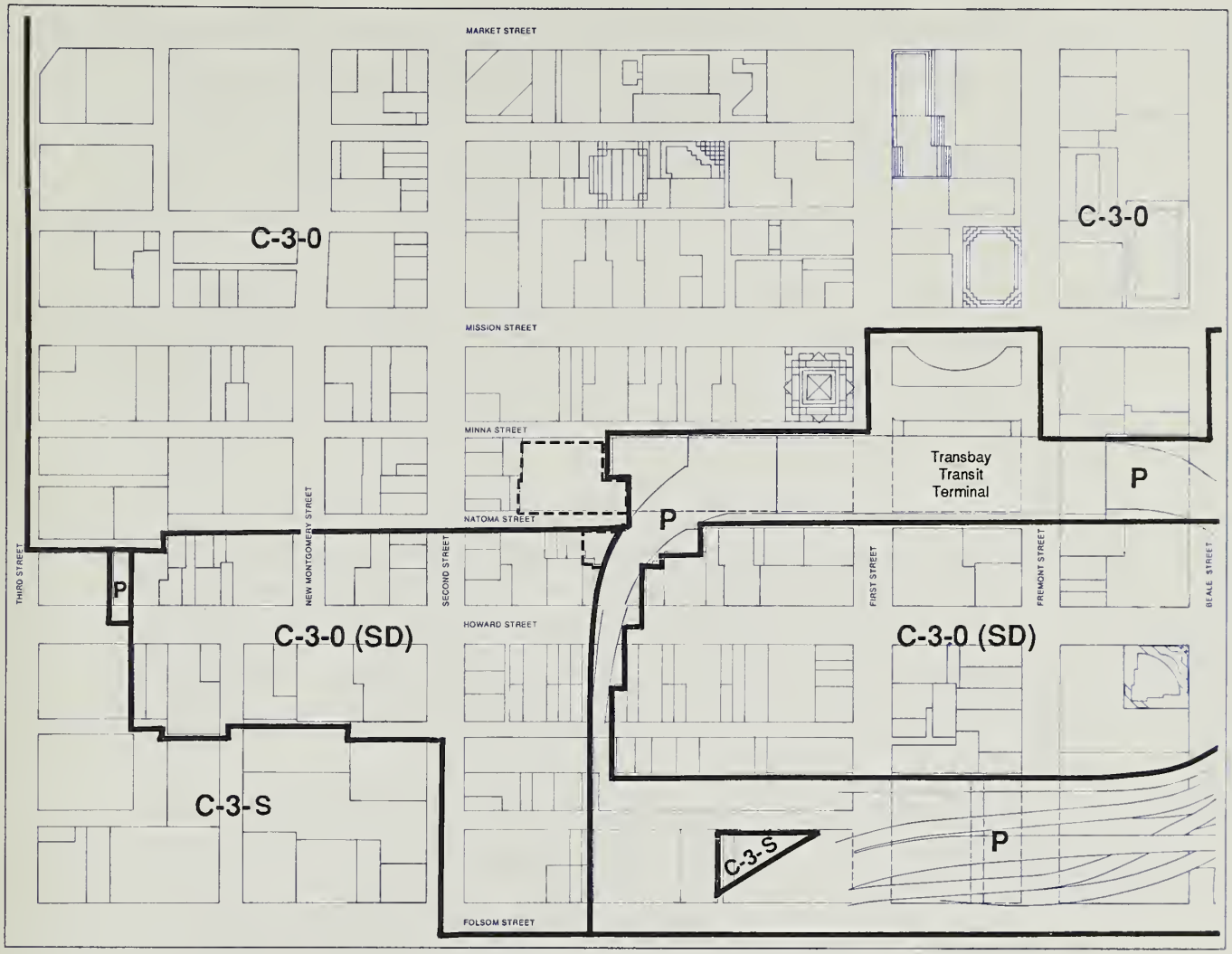
Residential uses in the project area include older three- to six-unit residential buildings on side streets in the Folsom and First Streets area; the Rincon Center residential highrises at Stuart and Howard Streets; mid-rise market-rate and senior apartment complexes in the Folsom and Third Streets area (all part of the Yerba Buena Center Redevelopment Area), and residential complexes recently developed in the Rincon Hill and South Beach areas, east and south of the project site.

The South of Market (SOM) area plan within the City's Master Plan covers areas to the south of the project site. Goals of the SOM area plan include protecting the existing economic, social and cultural diversity; preserving existing housing and encouraging development for new affordable housing; protecting and facilitating the expansion of industrial artisan, service and neighborhood-serving retail activities; and preserving existing amenities and improving neighborhood livability.

ZONING

The residential site is in the C-3-O Downtown Office District (see Figure 12 on p. 43). Permitted uses in this district include high-density office, retail and services. Development is permitted with a basic Floor Area Ratio (FAR) of 9:1. In the C-3-O district, development greater than the basic 9:1 FAR, up to a maximum of 18:1 FAR, is allowable through Transfer of Development Rights (TDR) from sites in the same zoning district, (the C-3-O district), that include architecturally significant buildings with unused potential floor area. All unused area applicable to the FAR of the preservation site could be transferred to a development lot subject to setback, sunlight access, separation between towers and any other limitations pursuant to City Planning Code Section 309. Permit Review in C-3 Districts.

The office site is in the C-3-O (SD) Downtown Office Special Development District (see Figure 12). This special district is identified in the Downtown Plan and City Planning Code as an area for growth redirected from North of Market and for receiver



---------- Project Site Boundary

C-3-0	Downtown Office District
C-3-0 (SD)	Downtown Office Special Development District
C-3-S	Downtown Support District
P	Public Use District

0 500
Feet

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 12
Planning Code Use Districts

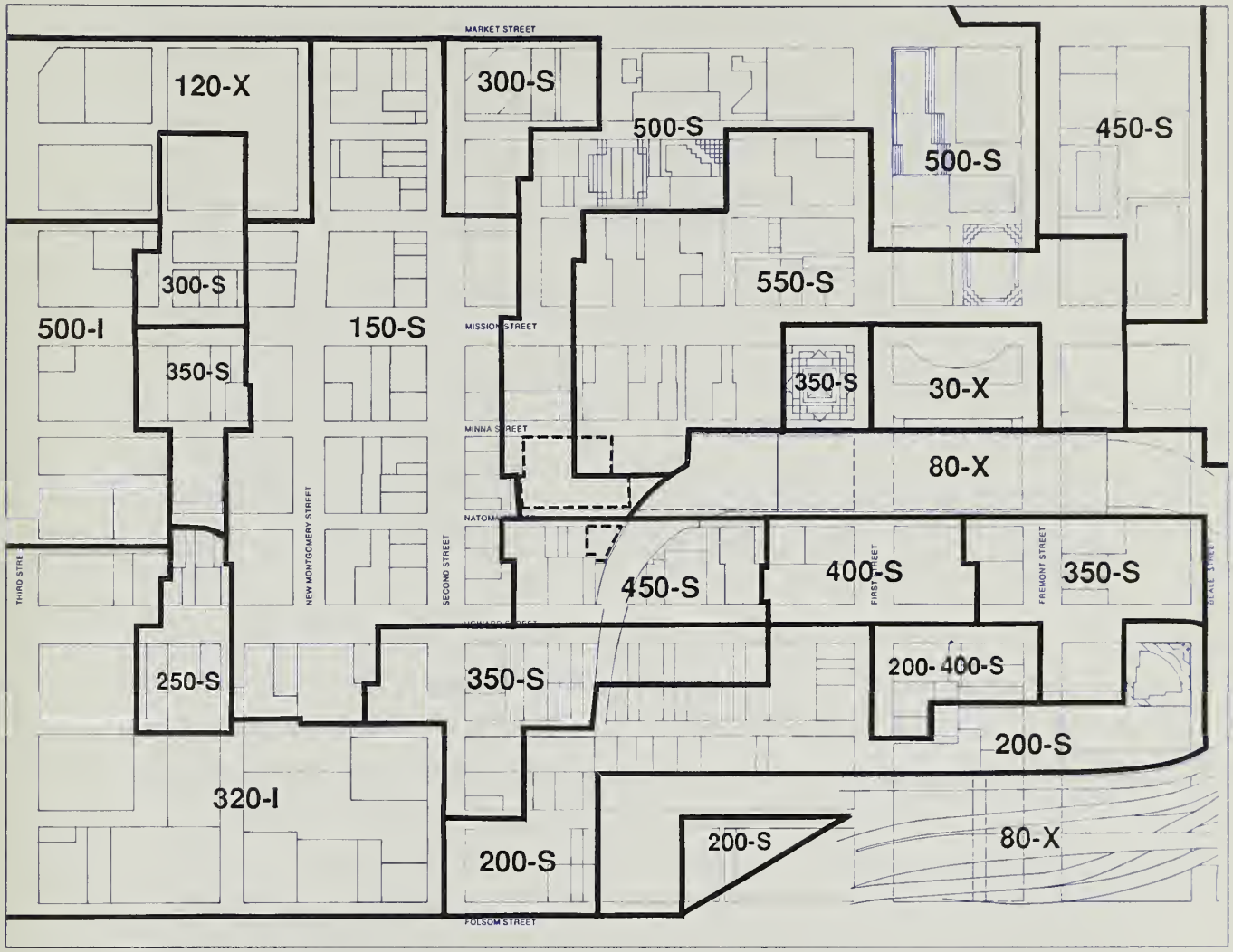
sites for transferable development rights (TDR). The predominant uses in this zoning district are offices, with retail and services. Development is permitted with a basic FAR of 6:1. Except for the provision that TDR may be transferred to sites within the C-3-O (SD) district from sites outside the district, and the 6:1 basic FAR, C-3-O (SD) district zoning provisions are identical to those of the C-3-O Downtown Office district.

Zoning in the site vicinity includes P (Public Use) east of the sites (the Transbay Transit Terminal and related areas) and C-3-S (Downtown Support) to the south. The Downtown Plan and the City Planning Code identify the project area as appropriate for growth redirected from the North of Market area, as indicated by the height and bulk designations for these areas.

The residential project site is within two Height and Bulk Districts; Lots 46, 53 and 54 of the site are within a 500-S Height and Bulk District, in which the maximum allowable height is 500 ft. (see Figure 13 on p. 45). Lot 45A is within a 550-S Height and Bulk District, in which the maximum allowable height is 550 ft. The office site is in a 450-S Height and Bulk District, in which the maximum allowable height is 450 ft.

In the S bulk district, the maximum length and maximum diagonal dimension of the lower tower are 160 ft. and 190 ft., respectively. The maximum average floor size is 17,000 sq. ft. and the maximum floor size is 20,000 sq. ft. For the upper tower the bulk controls are: a maximum length of 130 ft.; a maximum average diagonal dimension of 160 ft.; a maximum average floor size of 12,000 sq. ft. and a maximum floor size of 17,000 sq. ft. Allowable exceptions to these bulk maximums are provided in Section 272, subject to approval under Section 309. Ten percent of permitted building height is allowed above the height limit upon further reduction in the volume of the upper portion of the tower. Thus, in the 500-S and 550-S Height and Bulk districts, the maximum allowable heights are 550 ft. and 605 ft., respectively. In the 450-S Height and Bulk district, the maximum allowable height is 495 ft.

The City Planning Code (Section 132.1(c), Separation of Towers) requires a 15-ft. setback from interior property lines and center of street, at the top of the building base (at a height 1.25 times the width of the principal street abutting the site). Exceptions to the setback requirement could be permitted under Section 132.1 subject to approval under the provisions of Section 309.



---------- Project Site

Numbers indicate maximum building height.
Letters indicate bulk districts.
S: Mandatory volume reduction at upper floors
In "S"-Bulk Districts, height may be increased by up to 10%.
X: Bulk limits not applicable

0 500
Feet

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 13
Planning Code
Height and Bulk Districts

Generally, the maximum permitted residential unit density in the C-3 Districts is the maximum residential unit density permitted in the R District nearest to the site, or one dwelling unit for each 125 sq. ft. of lot area, whichever is the greater density (City Planning Code Section 215(a)). Dwelling units at a density greater than 1:125 are allowable through Conditional Use Authorization (City Planning Code Section 215(b)).

Off-street parking is required for residential uses in the C-3-O District in the ratio of one space per four dwelling units, under Section 151 of the City Planning Code. According to Section 204.5(c) of the City Planning Code, up to 150 percent of the number of off-street parking spaces required, plus seven percent of gross floor area of uses which do not have an off-street parking requirement, may be classified as accessory parking. Off-street parking is not required for commercial uses (including retail space) in the C-3-O District or C-3-O (SD) District.

In C-3 Districts, off-street loading and service vehicle spaces are required as follows: two spaces required for 200,001 to 500,000 gsf of residential apartment use; 0.1 spaces per 10,000 sq. ft. of office use (to the closet whole number); and one space is required for 10,001 to 30,000 gsf of retail (City Planning Code, Section 152.1, Table 152.1).

The office project would be subject to the Transit Impact Development Fee (TIDF, Ordinance 224-81), which requires a project sponsor to contribute a one-time fee for maintaining and augmenting transportation service in an amount proportional to the demand created by the project.

Open space is required for residential uses in the C-3 Districts, in minimum amounts of 36 sq. ft. of private usable open space per dwelling unit; per Section 135 of the City Planning Code, common usable open space may be substituted for private open space, in a ratio of 1.33 times the private open space required. The open space provided, whether private common or a combination of both, is subject to certain standards including minimum dimensions and area, per Section 135(e), (f) and (g).

Open space is required for commercial uses in the C-3-O District and in the C-3-O (SD) District in a 1:50 ratio of open space to uses with open space requirements, as per Section 138(a) and (b) of the City Planning Code; and contribution of $2.00 for each net new gsf of office use to the Downtown Park Fund (Section 139(d)). The open space provided must meet minimum standards as defined by Section 138(d) of the Code.

DOWNTOWN EXTENSION OF THE PENINSULA COMMUTE SERVICE

The project site would be adjacent to two alternative terminal locations for the proposed extension of the Peninsula Commute Service (PCS) into downtown San Francisco. The Downtown San Francisco PCS Extension is under formal planning and environmental review by the Peninsula Corridor Study Joint Powers Board (JPB) which consists of various transportation representatives from Santa Clara, San Mateo and San Francisco Counties, Caltrans, and the Metropolitan Transportation Commission. A Draft EIS is being prepared for that project, which will evaluate three alternatives for extending PCS service downtown. Alternative 4A would run under Second Street north to Market Street. Alternatives 5A and 5B would include an underground station on the north side of Howard Street between First Street and Second Street, south of Natoma Street. Those alternatives are still under study, and there are no final plans for the project. The Draft EIS is projected to be available for public review in early-1992./1/

NOTE - Land Use and Zoning

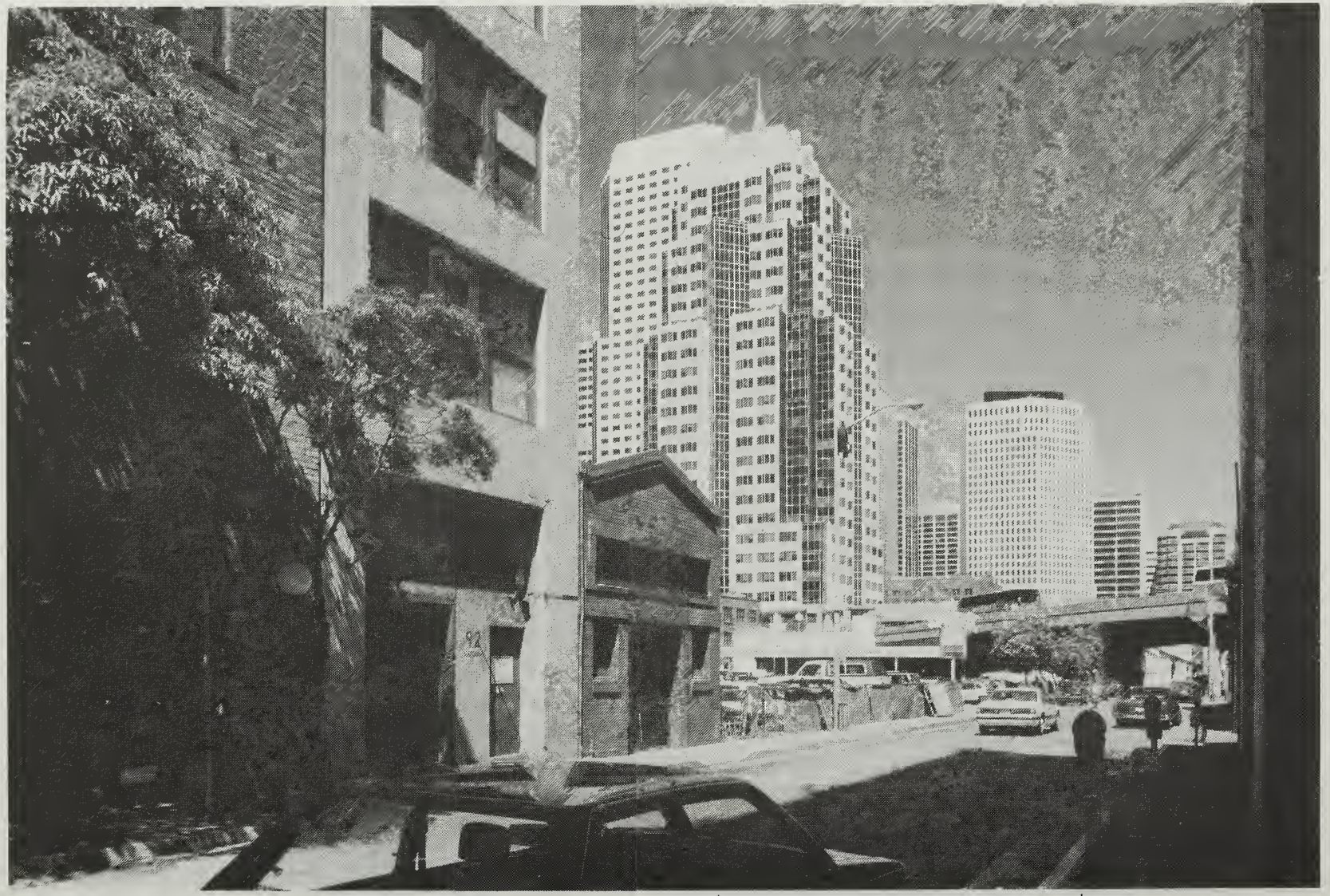
/1/ David Calver, Engineer, Parsons Brinckerhoff Quade Douglas, telephone conversation, November 14, 1991.

B. URBAN DESIGN

SETTING

There are no existing buildings located on the project site. Six existing buildings on the block are adjacent to the site on the west, brick and masonry structures ranging from one- to five-stories in height. Adjacent to the residential site on the east is the Bridge Terminal Garage at the Transbay Transit Terminal (see Figure 14 on p. 48).

The office site is a private parking lot leased by Dahl-Beck Electric Company, adjacent to the office site on the west. The Dahl-Beck buildings are one- and two-story brick masonry industrial-style buildings. Elevated ramps of the Transbay Transit Terminal are adjacent to the office building on the east. Beneath the elevated ramps is public parking.



SOURCE: Heller & Leake

Natoma Mews ■

Figure 14
View of the Residential Building

Buildings in the project site vicinity are generally two- to five-stories in height and with generally light-to-medium colors and facade materials including reddish and tan-colored brick, concrete, and light-colored stone. They are generally constructed of brick as original material, but some of their facades have been plastered and painted tan or gray. Similar, low-scale older buildings extend south and southwest of the project site. Development north and northeast of the project site includes high-rise, office buildings of light-colored polished granite, steel and glass such as the 100 First Street building on the project block, the Five Fremont, Pacific Gas and Electric and Pacific Gateway buildings about one block northeast of the project site (see Figures 15 to 17 on pp. 50 to 52).

The view from the project site to the east is of the elevated ramps serving the Transbay Transit Terminal. To the north and northeast, high-rise office buildings are visible beyond the lower-scale development in the foreground. Although most views to the west are obstructed by the buildings existing on the project block, the 30-story Pacific Bell Building at 140 New Montgomery Street is visible. To the south, views are of low-scale industrial buildings in the foreground and the rear of taller, four-story buildings beyond.

The existing parking lots developed on the project site are generally are not visible outside of the immediate vicinity because of street configurations, intervening buildings, and the elevated transit ramps.

C. SHADOW AND WIND

SETTING

Shadow

The project site is not currently occupied by any structures. Open space in the project vicinity includes the Transbay Transit Terminal staging area, at the southeast corner of First and Mission Streets; the 100 First Street Sun Terrace on the south side of Mission Street, west of First Street; the Golden Gate University entry and seating area on the north side of Mission Street west of First Street; Tishman Plaza and Chevron Plaza on the south side of Market Street between First and Second Streets; Zellerbach Plaza and Citicorp Plaza, at the northeast and northwest corners, respectively, of the intersection of Sansome and Sutter Streets; the Wells Fargo Roof Garden and the McKesson Plaza

SOURCE: Heller & Leake

Natoma Mews ■

Figure 15
View Toward Site Northwest Along Second Street at Folsom Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 16

View Toward Site Northwest from Harrison Street at First Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 17
View Toward Site Northwest from Bay Bridge

at the intersection of Montgomery and Post Streets; Fremont Center Plaza on the east side of First Street north of Mission Street; Bechtel Plaza occupying areas on the east side of Fremont Street and the west side of Beale Street north of Mission Street; 425 Market Street Plaza, on Fremont Street between Market and Mission Streets; Pacific Gateway Plaza on the northern portion of the block bounded by Beale, Mission, Main and Howard Streets; Annie Alley in the block bounded by New Montgomery, Mission, Third and Market Streets; the Hotel Meridian ground and terrace areas on the west side of Third Street, between Mission and Market Streets, the 161 Sutter Street roof garden and Van Mehr Street plaza on the block bounded by Montgomery, Post, Kearny and Sutter Streets; the 333 Bush Street greenhouse and the 222 Kearny Street roof garden on the block bounded by Montgomery, Sutter, Kearny and Bush Streets. Approved, but not yet constructed, publicly accessible private open spaces in the project vicinity include plazas, greenhouses or arcades for the 524 Howard Street, 101 Second Street, 222 Second Street and 299 Second Street and 300 Howard Street projects that will include open space in the form of greenhouses and arcades.

The nearest open spaces protected by Proposition K, the Sunlight Ordinance (Section 295 of the City Planning Code), in the vicinity of the project are Union Square to the northwest, St. Mary's Square to the north and the Justin Herman Plaza to the northeast, each of which is at least five blocks from the project site. In addition, the proposed Rincon Park (on the Embarcadero between Howard and Harrison Streets) would be subject to Proposition K protection if it were to be designated for acquisition by the Recreation and Park Commission.

Existing and project shadow patterns for various times of the day and year are discussed in detail in Chapter V, Impacts, pp. 93 to 116. Sunlight requirements under the City Planning Code for regulated spaces in the site vicinity are discussed on pp. 116 to 117.

Wind

U.S. Weather Bureau data show that westerly (i.e., from the west) to northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco./1/ Of the 16 primary wind directions measured at the Weather Bureau station (at a height of 132 ft.), four directions comprise the greatest frequency of occurrence as well as the majority of strong wind occurrences. These are northwest, west-northwest, west and west-southwest, with occurrence rates of about 10 percent,

14 percent, 35 percent, and two percent, respectively, of the time between the hours of 6:00 a.m. to 8:00 p.m. throughout the year. The remaining 12 wind directions comprise 36 percent combined frequency of annual occurrence with lower wind speeds. Calm conditions occur two percent of the time.

Average wind speeds are the highest during summer and lowest during winter months. Strongest peak winds, however, occur in the winter when speeds of 47 miles per hour (mph) have been recorded./2/ The highest average wind speeds are in the mid-afternoon and the lowest are in the early morning.

Pedestrian Comfort and Wind Criteria

Wind conditions partly determine pedestrian comfort on sidewalks and in other public areas. In the downtown area, high-rise buildings can redirect wind flows around buildings and divert winds downward to street level; each can result in increased wind speed and turbulence at street level. The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four mph have no noticeable effect on pedestrian comfort. With speeds from four to eight mph, wind is felt on the face. Winds from eight to 13 mph will disturb hair, cause clothing to flap and extend a light flag mounted on a flagpole. Winds from 13 to 19 mph will raise loose paper, dust and dry soil, and will disarrange hair. For wind speeds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 mph to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over./3/

In order to provide a comfortable wind environment for people in the downtown area, Section 148 of the City Planning Code establishes comfort criteria based on pedestrian-level windspeeds that include the effect of turbulence, referred to as the "equivalent wind speeds." Section 148 sets comfort levels of seven mph equivalent wind speed for public seating areas, 11 mph equivalent wind speed for areas of substantial pedestrian use, and 26 mph equivalent wind speeds as a wind hazard criterion. New buildings and additions to buildings may not cause ground level winds to exceed these levels more than ten percent of the time year round between 7:00 a.m. and 6:00 p.m./4/ If existing wind speeds exceed the comfort level, new buildings and additions are required to be designed to reduce ambient wind speeds to meet the requirements.

Exceptions may be requested under Section 309 of the City Planning Code. However, no exception would be granted and no building or addition would be permitted that would cause wind speeds to exceed the hazard level, defined as an hourly average of 26 mph, for more than a single hour of any year.

Existing and project generated wind conditions are discussed in Chapter V, Environmental Impacts, pp. 117 to 119 and Appendix B, p. A.31 to A.37.

NOTES - Shadow and Wind

/1/ The U.S. Weather Bureau data used in this analysis were gathered at the weather station atop the Old Federal Building at 50 United Nations Plaza during the years 1945-1950. Data were taken hourly, annually for 16 wind directions. The data base, comprised of 32,795 hourly observations, is of sufficient length to provide a reliable estimate of future climatic conditions in San Francisco.

/2/ E. Jan Null, Climate of San Francisco, NOAA Technical Memorandum, NWS WR-126, February 1978.

/3/ Lawson, T.V. and A.D. Penwarden, "The Effects of Wind on People in the Vicinity of Buildings," Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U.K., 605-622 1976.

/4/ Section 148 of the City Planning Code specifies the hours of 7:00 a.m. to 6:00 p.m. The available weather data cover the hours to 6:00 a.m. to 8:00 p.m. Thus, observation from two additional evening hours and one additional morning hour are included in these data. Because winds are generally stronger in the afternoon and evening than in the morning, this approximation is conservative -- it is likely to overestimate the existing and projected wind speeds.

D. CULTURAL RESOURCES

There is no specific information in the archival record to suggest any systematic occupation or use of the land on or near the present project site during the Prehistoric, Spanish, Mexican and Early American periods (ca. 6000 B.C. - A.D. 1848)./1,2/

During the Prehistoric Period (ca. 6000 B.C.-A.D. 1775), the project site may have represented a favorable setting for Native American settlement. A number of prehistoric sites have been uncovered within a half-mile radius of the project site. One of these sites, the Stevenson Street Shellmound, was discovered in 1986 approximately one block to the north of the project site. These discoveries were in deposits deeply buried beneath the regions original sand dunes. Archival sources indicate that the

project site was largely filled, rather than cut, when the area was brought into conformity with the established city grade system in the mid-1850's. Therefore buried prehistoric cultural deposits may have been simply covered, rather than cut away during this time period.

During the Spanish and Mexican Periods (1776-1845), archival data indicates that it was unlikely that there was any activity that would regularly have brought anyone to the project site or its immediate surroundings.

During the Early American Period (1846-1849), the project area remained in its natural state. The first recorded occupation of the site occurred in the Early Gold Rush Era (1849-1852). The project site was situated in one of the first settlement areas south of Market Street, known as Happy Valley. The settlement was populated by miners waiting to travel east to the gold fields. During this period, Happy Valley was filled with tents or other temporary shelters with only a few small permanent structures.

The first permanent structures on the project site were constructed in the 1850's. Beginning in the early 1850's, areas south of Market Street began to be graded. Archival sources do not provide precise dates for grading activities within the proposed project site, but it is certain that the process was complete by the early 1860s. According to the 1859 U.S. Coast and Geodetic Survey Map of San Francisco, the project site was occupied by numerous structures. Although it is not possible to determine the precise architectural characteristics, dimensions, or functions of these structures, it is likely that most, if not all of them, were modest, wood-frame residences and/or small commercial enterprises. It is therefore likely that cultural resources from this period were deposited within the project site.

Between the late 1850s and 1869, the area around the proposed Natoma Mews site was adjacent to the fashionable shops and other services catering to the upper class residents of Rincon Hill, the most fashionable neighborhood in San Francisco. After the 1869 Second Street Cut was completed, the area went into an economic and social decline. The economic and social decline of Second Street also affected the character of streets in the immediate vicinity, such as the back alley streets of Natoma and Minna, and resulted in the area being occupied by crowded working class tenements. In general, from 1860's to the 1906 Earthquake and Fire, the project area consisted of commercial and residential structures.

The South of Market area was devastated by the fires that followed the 1906 Earthquake: in all likelihood, none of the structures existing within the project area prior to the earthquake survived. The 1913 Sanborn Insurance Map indicates that the project site was occupied by a number of commercial structures and enterprises. The structures were demolished between about 1960 and 1979.

The site condition at the time of the Early Gold Rush Era consisted of a sheltered hollow, adjacent to a large sand hill, with an elevation of approximately 20 feet about sea level and within approximately 100 meters of the shoreline of Yerba Buena Cove. Since that time, grading has occurred (during the 1850's and early 1860's) leaving the site about 11 ft. above the City base or about 19 ft. above the ordinary high tide mark.

NOTE - Cultural Resources

/1/ An archaeological resources report titled *Archival Cultural Resources Evaluation of the Proposed Natoma Mews Project, San Francisco, California* was prepared for the proposed site by Allen G. Pastron, Ph.D., Archeo-Tec, June 1990, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco.

/2/ An archaeological resources report titled *Archival Cultural Resources Evaluation of Assessor's Block 3721, Lot 31, a Portion of the Proposed Natoma Mews Project, San Francisco, California* was prepared for the proposed site by Allen G. Pastron, Ph.D., Archeo-Tec, December 1990, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco.

E. HAZARDOUS MATERIALS

BACKGROUND

The project site has been paved parking lots for more than ten years, although the property and surrounding neighborhood have a history of mixed residential, commercial, and industrial land uses./1,2/ Recent sampling and testing programs and reviews of agency records have verified that storage, use and disposal of hazardous materials from past activities have affected soils at the project site and soils and groundwater in the site vicinity./3/ Development of contaminated portions of the site could result in the excavation of hazardous materials.

Certain chemical and physical properties of a substance may cause it to be considered hazardous. Under state law, hazardous properties are grouped into four general categories: toxic, ignitable, corrosive, and reactive./4/ As defined in the California

Code of Regulations (CCR), Title 22, Section 66084, a "hazardous material" is a "substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed."

According to the California Health and Safety Code, Section 25124, and for purposes of this EIR, a "hazardous waste" is any hazardous material that is abandoned, discarded or in storage prior to recycling. The categories that apply to hazardous materials also apply to hazardous wastes: toxicity, ignitability, corrosivity, or reactivity. For example, soil that is excavated from a site containing hazardous materials would be a hazardous waste if it exceeded specific CCR Title 22 criteria.

Environmental contaminants are not necessarily hazardous materials or hazardous wastes. For purposes of this EIR, soil or water is considered to be contaminated if it contains elevated (above natural background) levels of a chemical substance, and if the resulting soil or water has the potential to cause adverse human health effects or adversely affect the natural environment pursuant to established regulatory criteria.

Remediation (clean-up) of hazardous wastes found at a project site is required if excavation is performed at the site; it may also be required if other activities are proposed. Even if soil or groundwater at a contaminated site do not have the characteristics required to be defined as hazardous wastes, remediation of the site may be required by regulatory agencies. This could occur, for example, if a contaminated material posed a potential threat to aquatic resources or to drinking water supplies. Clean-up requirements are determined on a case-by-case basis by the agency taking lead jurisdiction.

HAZARDOUS WASTE REGULATORY FRAMEWORK

The generation, storage and handling of hazardous materials and wastes are regulated by various federal, state and local laws and regulations aimed at the protection of public health and the environment. A brief summary of regulations follows; a more detailed discussion of federal and state regulations is presented in Appendix C, pp. A.38 to A.44.

Federal and State

At the federal level, the primary laws governing hazardous wastes are the Resource Conservation and Recovery Act of 1976 (RCRA), and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). Generally, these laws require that responsible parties report any known hazardous waste contamination of soil or groundwater to the EPA.

At the state level, the California Hazardous Waste Control Law (HWCL) is the state equivalent of RCRA. California regulations incorporate federal standards, but in many respects are stricter. The Toxic Substance Control Division of the California Department of Health Services (DHS) is the agency empowered to enforce federal hazardous materials and waste regulations in California, in conjunction with the EPA. When hazardous waste is transported for treatment or disposal, hazardous waste manifests must be prepared by the generator. A hazardous waste manifest lists a description of the waste, its intended destination, and regulatory information about the waste. A copy of each manifest must be filed with DHS.

The San Francisco area is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB), which has the authority to require groundwater investigations and to remediate the site when the quality of the waters of the state are threatened. Clean-up standards employed by the RWQCB can be more stringent than those used by EPA or DHS./5/ If soils containing hazardous materials, are excavated, the Bay Area Air Quality Management District (BAAQMD) may impose specific requirements on such activities to protect ambient air quality from dust or airborne contaminants. Among them, the BAAQMD Regulation 8, Rule 40 would apply during handling of soil contaminated with petroleum or other volatile organic chemicals.

Local

The San Francisco Department of Public Health, the San Francisco Department of Public Works, and the San Francisco Fire Department are involved directly in the management of hazardous materials and wastes within the City and County of San Francisco.

The Department of Public Health is designated by the State Water Resources Control Board to enforce the State Underground Storage Tank (UST) program. Permitting of

underground storage tank installation and removal is overseen by the Department of Public Health. The Department of Public Health also issues permits to businesses that store hazardous materials and conducts inspections on a regular basis to ensure compliance with regulatory requirements. The Department of Public Health, the State Department of Health Services, and RWQCB jointly oversee subsurface investigations and remediation at sites containing hazardous wastes.

The Department of Public Works administers Article 20, Ordinance No. 253-86, of the Public Works Code. This ordinance, entitled "Analyzing the Soil for Hazardous Wastes," requires soils testing for projects in San Francisco that involve excavation in certain, designated areas underlain by artificial fill. The ordinance applies to properties in San Francisco located on the San Francisco Bay side of the original high tide line (or any other sites designated by the Director of Public Works, who has the authority to specify additional sites for study on an individual basis). The project site lies outside of the designated high-tide zone, and would not fall under the authority of this ordinance (unless designated by the Director of Public Works)./6/

The San Francisco Fire Department issues permits for the storage of flammable liquids. Permitting and other records associated with the storage of flammable liquids on file at the Fire Department date back to the early 1900s, prior to state and federal involvement in hazardous material and waste management.

Site remediation or development can be subject to regulation by other agencies. For example, construction dewatering will require a permit from the Department of Public Works Industrial Waste Division for discharge to the stormwater/sewer collection system.

HAZARDOUS MATERIAL WORKER SAFETY REQUIREMENTS

Properties found to be contaminated are subject to special worker safety requirements, based on Federal and/or State of California Occupational Safety and Health Administration (OSHA) requirements both to protect construction workers during demolition and excavation and to protect site investigation and cleanup workers who are performing site studies or site remediation activities. In both instances, site safety plans would be required in compliance with federal and state OSHA requirements. Such site safety plans typically include provisions for safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure

warnings, and emergency response and fire prevention plan preparation. Additional information on hazards-related safety requirement is presented in Appendix C, pp. A.40 to A.41.

INFORMATION SOURCES

Information evaluated in this report was gathered from available written records. Past and current owners and occupants of the project site were not consulted. An *Archival Cultural Resources Evaluation* of the property was prepared by Allen Pastron of Archeo-Tec./1/ That report was followed shortly by a supplemental cultural resources report covering a small portion of the site not included in the first report./2/ Geomatrix Consultants collected and analyzed soil samples at the property and published the findings in an *Environmental Site Assessment./3/* Those reports were the primary sources of information on past and present conditions at the site.

In evaluating the history and potential for contamination of the project site and adjacent areas, the reports mentioned above drew upon information from historical archives, such as fire insurance maps prepared by the Sanborn Insurance Company, aerial photographs, and files and database records of federal, state, and local regulatory agencies. Information sources reviewed for the preparation of the *Cultural Resources Evaluation* and *Environmental Site Assessment* are documented in those reports.

While the information presented here is believed to be accurate, no certifications or guarantees can be made to that effect. Because of the imprecise nature of the original information sources, no representation is made that the sites discussed below are the only potentially contaminated areas, nor that the possible contaminants discussed represent the sole hazardous waste-related problems at a particular site. Furthermore, because public agency records are sometimes incomplete, it is possible that remediation of environmental contamination has already occurred at one or more of the neighboring sites discussed below.

HISTORIC SITE USES AND POTENTIAL SOURCES OF CONTAMINATION

Excluding parked vehicles, no obvious sources of contamination are visible at the project site. All buildings other than the parking attendant's office have been removed, and the site has been covered over by the existing asphalt pavement.

Historic land uses at the site and vicinity were reviewed in the Geomatrix *Environmental Site Assessment* for their potential to indicate uses that might have contaminated the site with hazardous wastes./3/ The earliest recorded use of the site area (aside from its natural state as sparsely-vegetated sand dunes) was in 1849 as Happy Valley, a temporary encampment of tents and shacks for would-be prospectors on their way to the gold fields in the Sierra Nevada. By 1857, the project site was completely developed by numerous small dwelling-like structures. The neighborhood -- San Francisco's South of Market district -- was entirely of mixed residential and commercial use at that time. Sometime during the 1850s or 1860s, the district's sand dunes were leveled, and the ground elevation at the project site was raised about five feet with sandy fill./1/

Industrial activities in the neighborhood began in about 1853 when seven iron foundries were known to be in operation south of Market Street. By 1875, the number of foundries in the district had grown to forty-two. None of those foundries were situated within the boundaries of the project site, but some were in the near vicinity./1/ Sanborn Insurance Company maps from 1887 and 1891 indicate the site was still devoted primarily to residential use, with only one commercial structure, a livery./1/ The buildings were probably still standing in 1906, when all structures on the site were destroyed by the Earthquake and Fire.

Redevelopment began rapidly after the fire, and by 1913 the project site contained its first recorded industrial uses: a tin can manufacturing works, a machine shop, a sign painting shop, a Goodyear Rubber Company factory, and several warehouses./1,2/ Commercial and industrial uses continued for several decades, and in 1950, the property held a battery repair shop; a trucking facility; and several warehouses. A paper box company occupied the site in 1954. In 1959, parking lot permits were filed for the site. By 1969, portions of the site were being used for parking, and by about 1979 all the structures had been demolished and the entire site had become a paved parking lot./3/

During the years of industrial use, contamination of site soil or groundwater could have occurred by material spills, leaks, carelessness, accidents, or poor waste handling processes. Potential concerns at the project site would include chemical contamination from the former paint shop, rubber company, battery repair facilities, or various metal works and manufacturing wastes; and possible contamination by petroleum products

from the trucking firm or other industries storing and using fuel and oils. Table 2 lists historic site uses that could have contributed to soil or groundwater contamination.

Another common source of contamination is leaking underground storage tanks. Much soil and groundwater contamination in industrial areas can be attributed to leaking USTs, which are one of the most common causes of environmental contamination in California. If a tank leaks, the escaping contents will contaminate soil adjacent to the leak. If not detected, contaminants from a leaking UST could reach the groundwater. Contamination of groundwater with fuel is considered a serious environmental effect, causing problems that can extend beyond the leak site. On the basis of case lists provided by the Regional Water Quality Control Board -- San Francisco Bay Region (RWQCB), there are no documented USTs or investigations regarding fuel leaks at the project site, although a number of USTs -- some leaking or abandoned -- are known to have been in use within a few hundred feet of the site./3/

In addition, much of the South of Market area of San Francisco was filled to grade with material that included debris and rubble. Although the project site apparently was filled primarily with sand from adjoining dunes, some rubble and brick fragments were noted in the soil borings done by Geomatrix./3/ Fill is found generally to a depth of about five feet, but the northeast portion of the site appears to contain as much as fifteen feet of fill. Heterogeneous fill has been implicated as a source of persistent soil contamination at several development sites in the San Francisco, most notably with heavy metals such as lead. (The likelihood of contaminated fill occurring in areas bayward of the historic high tide line -- one block to the east of the project site -- was the reason for enactment of San Francisco's "Testing the Soil for Hazardous Wastes" ordinance in 1986.)

Figure 18 on p. 65 shows approximate locations of potential sources of contamination at the project site and in the project vicinity. Locations are keyed to references in Table 2, below, and in Appendix C, pp. A.41 to A.42, where potential sources of contamination from off-site sources are discussed.

POTENTIAL SOURCES OF CONTAMINATION FROM OFF-SITE ACTIVITIES

Land can be affected by spills or contamination at adjacent properties. Several historic industries that were potential sources of contamination operated in the vicinity of the project. The most noteworthy were a gasoline engine repair facility and a possible

TABLE 2: HISTORIC LAND USES AND POTENTIAL CONTAMINANTS AT THE PROJECT SITE

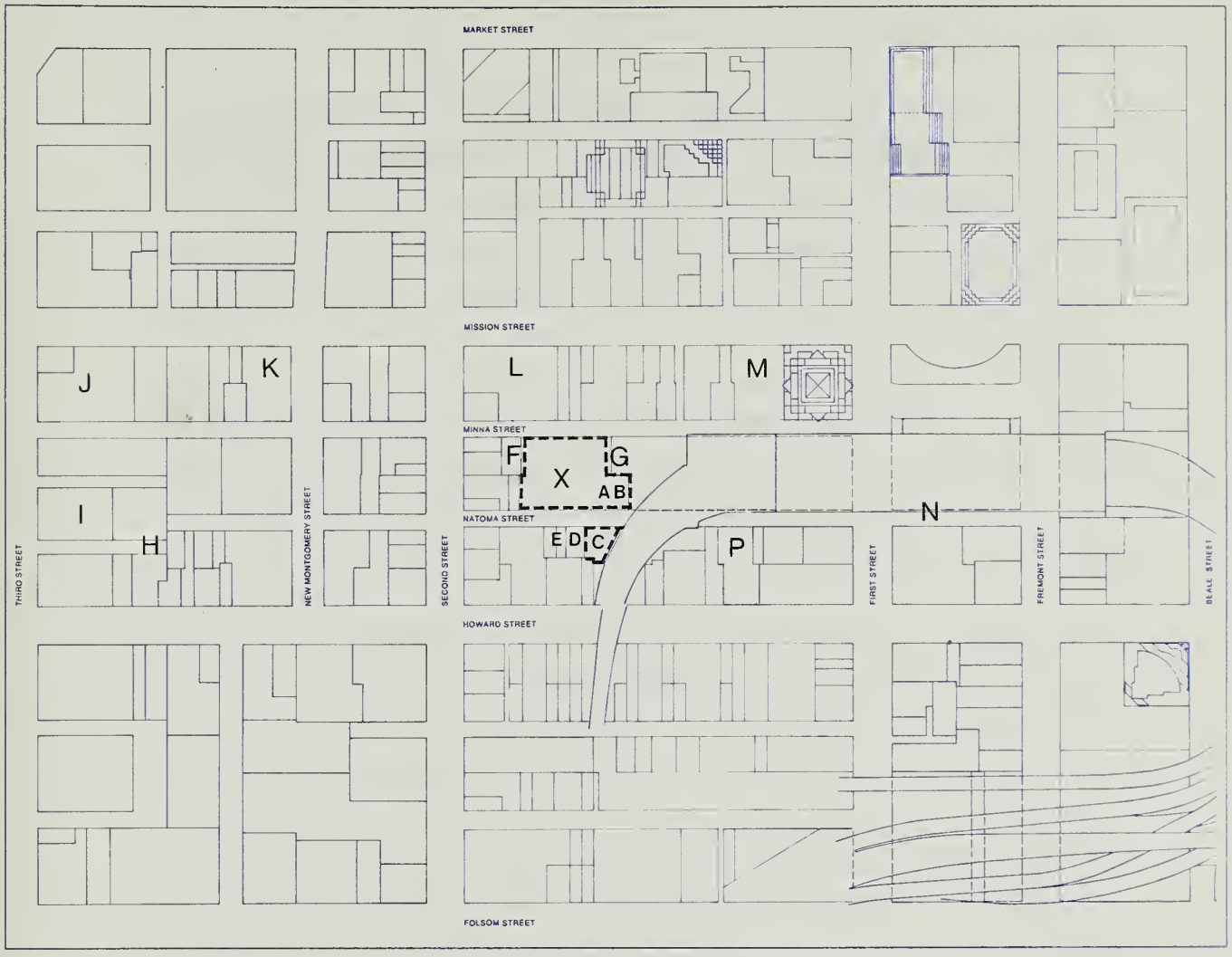
Key/a/	Land Use	Approximate Years of Use	Potential Contaminants
A	Battery repair	~1950+	Metals, acids, solvents
B	Trucking facility	~1950+	Metals, gasoline, oils, solvents
C	Goodyear Rubber Co.	~1913+	Miscellaneous organic and inorganic compounds, sulfur, solvents
/b/	Coast Metal Works -- Tin Cans	~1913+	Metals, acids, cyanide, oils, solvents
/b/	Machine shop	~1913+	Metals, acids, cyanide, oils, solvents
/b/	Sign painting	~1913+	Solvents, metals, inks
/b/	Imperial Paper Box Co.	~1954+	Solvents, oils, inks, resins, metals

NOTES:

/a/ Location keys are shown in Figure 18.
/b/ Exact location on the property is unspecified in source documents.

SOURCES: Pastron, Allen G., Archival Cultural Resources Evaluation, 1990 (and supplementary Archival Cultural Resources Evaluation, 1990); Geomatrix Consultants, Environmental Site Assessment, 1990.

gas station and auto shop with a gas and oil storage or pumping facility, that were situated immediately adjacent to the site in 1950./3/ The primary route of migration of contaminants from one site to another is through groundwater. Although the approximately 36-foot deep excavation planned at the site would be expected to reach the water table, groundwater was not encountered in the 15-foot deep borings done by Geomatrix./3/ In addition to the possible adjacent oil and gas storage, nearby historic businesses that are potential sources of contamination include an electrical shop, sheet metal operations, light manufacturing, a tire recapping shop, and an automobile garage./3/



Project Site Boundary

- **A** Battery repair
- **B** Trucking facility
- **C** Goodyear Rubber Co.
- **D** Sheet Metal Works
- **E** Light manufacturing activity
- **F** Gasoline engine repair
- **G** Gas station; Auto repair
- **H** Waste oil contamination
- **I** Soil contamination
- **J** Soil contamination
- **K** Leaking gasoline UST
- **L** Bunker oil UST
- **M** Gasoline UST
- **N** Gasoline and diesel soil contamination
- **P** UST
- **X** Machine shop; Signpainting; Imperial Paper Box Co.

0 500
Feet

*NOTE: **X** = Historic industry was situated at an unspecified location on the project site.*

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 18
Potential Sources of
Project Site Contamination

SOIL TEST RESULTS

Compliance with soil testing requirements of San Francisco's "Analyzing the Soil for Hazardous Waste" ordinance would not be required for the project site based on location, because it is outside the designated tidewater zone. As part of the site assessment work, however, soil samples were collected at 11 borehole locations within the project area./3/ The samples were analyzed for purgeable halocarbons (EPA Method 8010), extractable petroleum hydrocarbons (EPA 8015), heavy metals (EPA 3050), and semivolatile organic compounds (EPA 8270). Several composite samples were analyzed for extractable metals, and one darkly stained, odorous sample was analyzed for total petroleum hydrocarbons. Groundwater was not encountered during the drilling, so no groundwater samples were collected. A brief summary of major test results and conclusions presented in the source document follows./3/

Test results indicated that many, but not all, of the soil samples collected were free of contamination at concentrations considered hazardous. Purgeable halocarbons and semivolatile organic compounds were not detected. Several metals were present in all samples tested; several samples had concentrations of metals above background levels. Metal concentrations were generally higher in upper layers of soil and lower at depth. One uncomposited soil sample and two composite samples contained lead at concentrations that marginally exceeded values above which the soil would have to be handled as a hazardous waste./7/ The greatest total lead concentration measured was 1,100 mg/kg. The locations of the highest metal concentrations corresponded to the area where the historic battery repair operations may have taken place. The visibly stained sample had a total petroleum hydrocarbons value of 50,000 mg/kg and a quantified diesel fuel value of 6,700 mg/kg, both exceeding anticipated cleanup guidelines./3,8/ That sample also smelled of petroleum. Remediation and confirmatory testing will be required at those locations.

The Geomatrix *Environmental Site Assessment* concluded that, as a worst case and on the basis of the limited sampling performed, the upper several feet of soil at the property might have to be disposed of as hazardous waste./3/ The sampling performed on the site did not extend to the depth beneath the surface to which excavation for the proposed subsurface parking levels in the residential tower would be conducted (about -25 ft. SFD).

CONCLUSIONS

The project site vicinity has a history of mixed residential and industrial uses. Potential sources of contamination at the project site appear to be limited to: (1) possible residual soil contamination from past activities on the site, (2) contamination potentially originating from similar activities adjacent to the site, and (3) possible contaminated fill. Groundwater was not encountered during drilling./3/

The Environmental Site Assessment indicated the presence of hazardous wastes at the property. Soil sampling and testing determined that lead and petroleum hydrocarbons are the contaminants of concern./3/ Portions of the site are contaminated with lead and petroleum hydrocarbons to a degree that would classify the soils as hazardous wastes upon excavation. Not all soil at the project site was found to be contaminated. Groundwater sampling has not been conducted at the site, and it is therefore not known to what extent, if at all, groundwater beneath the site surface is contaminated.

NOTES - Hazardous Materials

/1/ Pastron, Allen G., *Archival Cultural Resources Evaluation of the Proposed Natoma Mews Project, San Francisco, California,* prepared for Environmental Science Associates, Inc., by Archeo-Tec Inc., 955-A Stannage Street, Albany, California, June, 1990, on file and available for public review at the Department of Planning, 450 McAllister Street, San Francisco.

/2/ Pastron, Allen G., *Archival Cultural Resources Evaluation of Assessor's Block 3721, Lot 31, a Portion of the Proposed Natoma Mews Project, San Francisco, California,* prepared for Environmental Science Associates, Inc., by Archeo-Tec Consulting Archaeologists, 5283 Broadway, Oakland, California, December 3, 1990, on file and available for public review at the Department of Planning, 450 McAllister Street, San Francisco.

/3/ Geomatrix Consultants, *Environmental Site Assessment, Minna and Natoma Streets, San Francisco, California,* Prepared for Dinkelspiel, Donovan and Reder, One Embarcadero Center, San Francisco, April 13, 1990, on file and available for public review at the Department of Planning, 450 McAllister Street, San Francisco.

/4/ Toxic Substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, such substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation or other health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include benzene, which is a component of gasoline and a suspected carcinogen, and methylene chloride, a common laboratory solvent.

Ignitable substances are hazardous because of their ability to burn. Gasoline, hexane and natural gas are examples of ignitable substances.

Corrosive materials can cause severe burns or damage materials; these include strong acids and bases, such as lye or sulfuric (battery) acid.

Reactive materials may cause explosions or generate toxic gases. Explosives, pure sodium or potassium metal (which react violently with water), and cyanide are examples of reactive materials.

/5/ The RWQCB water quality protection objectives and goals for the San Francisco Bay Region are contained in the *Water Quality Control Plan, San Francisco Bay Basin, Region (2)*, December 1986.

/6/ Provisions of the San Francisco's "Analyzing the Soil for Hazardous Wastes" ordinance call for a site history and soils investigation to be conducted prior to issuance of building permits for development involving excavation of more than 50 cubic yards of soil. If any subsurface material exceeding hazardous waste standards is discovered during soil sampling activities, additional investigations and/or site remediation, overseen by appropriate state and local agencies, can be required before issuance of a building permit. Because the project site is situated just outside of the designated zone, the project does not fall under the jurisdiction of the Soils Analysis Ordinance.

/7/ California Code of Regulations, Title 22, Article 11, Section 66699, "Persistent and Bioaccumulative Toxic Substances."

/8/ For soil contaminated by petroleum products, cleanup guidelines are flexible and site specific. See discussion of project impacts.

F. TRANSPORTATION

The existing on-site 134-space lot on the residential site provides valet parking for long- and short-term users; the office building site has 16 spaces in a private parking lot. The site is served by local streets and by portions of the regional freeway system (see Figure 1, p. 22). Freeway access to the East Bay via the Bay Bridge is provided by ramps on Harrison Street at Essex and First Streets (about 2,200 ft. and 3,000 ft. southeast of the site, respectively) and at Mission and Beale Streets (about 1,800 ft. northeast of the site). The Mission / Beale Street ramp currently is closed as a result of the Loma Prieta earthquake (see further discussion below). Freeway access to the Peninsula and the San Francisco International Airport is provided by ramps at Mission and Beale Streets and Harrison and Fourth Streets (about 3,700 ft. southwest of the site). Traffic headed to the North Bay generally travels along Van Ness Avenue and Franklin Street or the Embarcadero to Bay Street. Access from the freeway system to the project site is provided by off-ramps at Fremont and Howard Streets (about 1,800 ft. southeast of the site) and at Mission and Main Streets (about 2,400 ft. northeast of the site).

The Loma Prieta earthquake of October 1989 had notable effects on the regional transportation network; repairs to most facilities have yet to be effected, with the exception of the Bay Bridge, where one span of the upper deck collapsed in the earthquake. Repairs were completed one month later and operations have returned to pre-earthquake patterns.

In Oakland, the Cypress Structure of I-880, demolished following its partial collapse in the Loma Prieta earthquake, is proposed to be rebuilt to the west of the original route./1/

Within San Francisco, major damage to State Route 480 (the Embarcadero Freeway), the I-280 extension north of U.S. 101, and the U.S. 101 ramps between Fell and Turk Streets caused closure of these routes. The section of I-280 between Army Street and Fourth Street was repaired and has reopened. The section of I-280 between Army Street and U.S. 101 is scheduled to be repaired by 1994./1/

In April 1990, Mayor Agnos proposed that the City demolish the elevated Embarcadero Freeway. Demolition of the structure was approved, initiated in February 1991 and completed in October 1991. Mayor Agnos has proposed constructing a depressed roadway within the same right-of-way. The feasibility of implementing this roadway and the sources of funding that would be required are being studied by City staff at the Mayor's direction and will be subject to separate environmental review.

In addition, the "terminal separation structure," the elevated connector between the Bay Bridge and the Embarcadero Freeway, will be demolished, as will its on- and off-ramps at Folsom Street. Caltrans District 4 plans to replace the terminal separation with a new structure (which would be lower in height than the existing structure) to enable traffic flow between the Bay Bridge and whatever roadway replacement is constructed within the Embarcadero right-of-way./2/

Caltrans also is proceeding with demolition of the U.S. 101 elevated structure (the Central Skyway) north of the Oak/Fell Street on- and off-ramps. This demolition, which will result in removal of the Gough/Turk Streets on-ramp and the Franklin Street/Golden Gate Avenue off-ramp, began in July 1991 and is expected to be completed by the end of 1991. The effects on surface streets of removing this portion

of the freeway from service will depend on what replacement facility, if any, is agreed upon by Caltrans and the City of San Francisco, but could include alterations in local traffic patterns in the vicinity of Civic Center and the area around Market Street and South Van Ness Avenue. Street improvements, including new signalization, would likely be made to surface streets designated as replacements for the demolished elevated portion of U.S. Highway 101.

In the vicinity of the project site, Market, Mission, Howard, Folsom, Third and Fremont Streets, as well as First Street (north of Howard Street) and Second Street (south of Howard Street) are designated as Transit Preferential Streets in the Transportation Element of the San Francisco Master Plan, on which priority is given to transit vehicles over autos during commute and business hours on weekdays./3/ Howard and Folsom Streets, as well as Fremont and First Streets (each south of Howard Street) are designated as Primary Vehicular Streets, which the Master Plan defines as "major routes for automobile and truck movements into and out of the Downtown area." Second and New Montgomery Streets, as well as First Street (north of the Transbay Terminal) are designated "Pedestrian Oriented Streets" in the Master Plan; the Master Plan states that on these streets certain design measures should be taken to improve mobility and render existing pedestrian space more pleasant and efficient. First Street is one-way southbound and carries four lanes of traffic. Second Street is a two-way north-south road adjacent to the site, with two lanes in each direction. Between Howard and Folsom Streets, the lane configuration transitions to three southbound lanes and one northbound lane. Mission Street is a two-way east-west road with two lanes in each direction. During the p.m. peak period, the parking lanes are tow-away zones and exclusive bus lanes. Parking prohibition between 4:00 p.m. and 6:00 p.m. does not, in general, free the curb lane as an extra lane for use by vehicles unless there is absolute enforcement and towing of illegally parked vehicles. An individual vehicle illegally parked tends to be enough to discourage most drivers from using the curb lane; time saved is lost if one is slowed when trapped in the curb lane. This peak-period prohibition does, however, allow traffic to flow more efficiently, especially on streets with generally full parking during off-peak hours, by reducing incidences of double-parked vehicles (e.g., taxis or UPS trucks). Howard Street is one-way westbound and carries four lanes of traffic. Natoma Street is one-way eastbound with a single travel lane. Minna Street is one-way westbound also with a single travel lane. There is on-street parking on one side of both Natoma and Minna Streets adjacent to the site.

A major regional transit facility, the Transbay Transit Terminal, is on Mission Street at First Street, one block east of the project site. The site is served by San Francisco Municipal Railway (MUNI) electric trolley and motor coach lines, providing radial service to and from the downtown area. MUNI bus lines operate on Mission, Howard and First Streets near the project site, as well as on Second Street south of Howard Street. The closest MUNI bus stops to the project site are on Mission Street at Second Street, serving the 14-Mission, 14L-Mission Limited and 14X-Mission Express, on Howard Street at Second Street serving the 12-Folsom, and on Second Street at Howard Street serving the 15-Third. MUNI Metro light-rail vehicle lines are accessible via the Montgomery Station located one and one-half blocks north of the project site on Market Street. Transit routes in the project vicinity are shown in Figure 33, p. 139. MUNI also plans to operate the F-Market streetcar service between Castro Street and the Transbay Terminal, temporarily via First and Fremont Streets, for a two- or three-year period beginning in mid-1994.

Regional transit service to the site is provided to and from the East Bay by the Bay Area Rapid Transit District (BART), at the Montgomery Station on Market Street and by AC Transit motor coaches at the Transbay Transit Terminal on Mission Street at First Street, one block east of the project site.

Service to the Peninsula is provided by CalTrain from the train terminal at Fourth and Townsend Streets; by the San Mateo County Transit District (Samtrans), with bus routes and stops along Mission Street (the closest to the site is at Second Street); and by BART, which provides transfers to Samtrans routes at the Daly City BART Station.

The Golden Gate Bridge, Highway and Transportation District (Golden Gate Transit) provides a.m. and p.m. peak-period bus service from/to Marin and Sonoma Counties. The closest boarding stops are along Howard Street, at the Transbay Terminal, and along Sansome Street. Discharge stops are located along Folsom Street, at the Transbay Terminal, and along Battery Street. Golden Gate Transit provides ferry service to terminals in Larkspur and Sausalito from the Ferry building, about three-quarters of a mile northeast of the site. It operates shuttle service from the Ferry building to the financial district and the South of Market area. Golden Gate Transit also operates a vanpool and club (subscription) bus program to areas not served by fixed routes.

The RIDES carpool program, operating as a nonprofit publicly funded corporation, provides consulting and matching services to help establish Bay Area carpools and vanpools.

Market, Mission, Howard, Folsom, Third and New Montgomery Streets, as well as Second Street (south of Howard Street) are designated as Preferred Commute Bike Routes in the Transportation Element of the City's Master Plan. None of these streets currently striped with bike lanes; only Howard and Folsom Street have bicycle route signs.

Existing pedestrian flows on Natoma and Minna Streets are minimal during both the noon and p.m. peak hours./4/ Available sidewalk widths adjacent to the site are limited, with effective widths of about two to three feet. In addition, bicycles used by a nearby courier service are locked to parking meters on Natoma when messengers are waiting for their new assignments. These bicycles further obstruct usable sidewalk widths. Generally, the limited number of pedestrians were observed using the street pavement instead of the sidewalks on both Natoma and Minna Streets. The eastside crosswalk across Mission Street at Second Street currently operates at unimpeded conditions during both the noon and p.m. peak hours. The eastside crosswalk crossing Howard Street at Second Street also operates at unimpeded conditions during both the noon and p.m. peak hours./5/ See Appendix D, Table D-4, pp. A.52, for an explanation of pedestrian flow rates and levels of service. Figure D-2, pp. A.53 to A.54, shows photographs of sidewalk conditions for each flow regime.

A survey of the existing off-street public parking in the site vicinity conducted for the EIR on the One Second Street project (about one block north of the Natoma Mews site), indicates that a total of 5,296 parking stalls exist within a 1/4-mile radius of the project site which are 88percent occupied on a typical weekday./6/ The daily parking rate for these spaces varies from $4.00 to $11.00.

The residential project site is located within the Downtown Core automobile control area designated in the Downtown Plan, a part of the San Francisco Master Plan./7/ A Plan goal is to reduce the number of private commuter vehicles and excess automobile traffic in the downtown core; the Plan discourages the addition of new long-term parking spaces in and around downtown. The office building site of the project is located outside the Downtown Core automobile control area; it is located in an area

designated as a Parking Belt in the Downtown Transportation Plan, an *Element of the Master Plan of the City and County of San Francisco.* Parking belts are areas that the Plan identifies as appropriate for short-term parking facilities to replace spaces removed from the core area.

NOTES - Transportation

/1/ Murphy, Lisa, Public Information Officer, Caltrans, telephone conversations, April 23 and October 15, 1991.

/2/ Bayol, Greg, Public Information Officer, Caltrans, telephone conversation, June 13, 1991.

/3/ San Francisco Department of City Planning, January 1983, *Transportation, An Element of the Master Plan* of the *City and County of San Francisco.*

/4/ Based on observations at the project site conducted by Environmental Science Associates on Wednesday, November 28, 1990.

/5/ Based on counts at Second and Howard Streets conducted by Environmental Science Associates on Wednesday, December 12, 1990 from 12 noon to 1:00 p.m. and Thursday, November 29, 1990 from 4:30 p.m. to 5:30 p.m. and at Second and Mission Streets conducted by DKS Associates on Wednesday, April 4, 1990.

/6/ San Francisco Department of City Planning, *Final Environmental Impact Report, One Second Street*, certified July 25, 1991, Case No. 89.632E.

/7/ San Francisco Department of City Planning, January 1983, *Downtown Plan, An Area Plan of the Master Plan* of the *City and County of San Francisco.*

G. AIR QUALITY

The Bay Area Air Quality Management District (BAAQMD) operates a regional monitoring network which measures the ambient concentrations of six air pollutants: ozone (O_3), carbon monoxide (CO), particulates (both fine particulate matter [PM_{10}] and total suspended particulates [TSP]), lead (Pb), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2). On the basis of the monitoring data, the Bay area, including San Francisco, currently is designated a non-attainment area with respect to the federal ozone and CO standards. A three-year summary of the data collected at the BAAQMD monitoring station nearest the project site (about 1.6 miles south at 10 Arkansas Street and previously at 900 23rd Street) is shown in Appendix E, p. A.58, together with the most stringent corresponding federal or state ambient air

quality standards. During 1989 in San Francisco, there were no violations of the federal or state eight-hour CO standards, although there were 13 violations of the state average 24-hour PM_{10} standard. In 1988, there was one violation of the federal and state eight-hour CO standard and five violations of the state average 24-hour PM_{10} standard in San Francisco. In 1987, there was one violation of the federal and state eight-hour average CO standard and four violations of the state PM_{10} standards./1/

BAAQMD has conducted several CO "hotspot" monitoring programs in the Bay area, including two in San Francisco. One CO monitoring program was conducted during the winter of 1979-80 at the intersection of Washington and Battery Streets, about 0.5 miles northwest of the project site./2/ The highest eight-hour average concentration was 10.1 ppm, which violated the nine-ppm state and federal standards by 1.1 ppm. The highest one-hour average concentration of 15 ppm did not violate the 20-ppm state standard or the 35-ppm federal standard. Another CO monitoring program was conducted during the winter of 1980-81 at the intersection of Geary and Taylor Streets, about one mile west of the site, and 100 Harrison Street at Spear, about 0.3 miles southeast of the site./3/ At Geary and Taylor Streets, the observed highest eight-hour average concentration was 11.5 ppm, which violated the state and federal eight-hour standards by 2.5 ppm, and the highest one-hour concentration was 15 ppm, which did not violate the state and federal standards. At Harrison Street, the observed high eight-hour and one-hour average concentrations were 7.8 ppm and 13 ppm, respectively, which did not violate the standards. In December 1985, the City monitored CO and counted traffic at the Sixth and Brannan intersection. Data from the various "hot spot" monitoring programs indicate that locations in San Francisco near streets with high traffic volumes and congested flows may experience violations of the eight-hour CO standard. Violations are most likely to occur during winter months, because average CO emissions increase when average temperatures decrease.

Comparison of these data with those from other BAAQMD monitoring stations indicates that San Francisco's air quality is among the least degraded of all the developed portions of the Bay area. Three of the four prevailing winds blowing off the Pacific Ocean, west, northwest, and west-northwest, reduce the potential for San Francisco to receive air pollutants from elsewhere in the region.

Data from monitoring within San Francisco show there have been occasional local exceedences of state and federal CO and state (but not federal) fine particulate standards, due largely to air pollutant emissions from within the City. CO is a non-reactive pollutant whose major source is motor vehicles. CO concentrations are generally highest during periods of peak traffic congestion. Particulate levels are relatively low near the coast, increase with distance inland, and peak in dry, sheltered valleys. The primary sources of particulates in San Francisco are demolition and construction activities, and motor vehicle travel over paved roads.

San Francisco, like all other sub-regions in the Bay area, contributes to regional air quality problems, primarily ozone (O_3), a regional problem, in other parts of the Bay area. O_3 is not emitted directly from air pollutant sources, but is produced in the atmosphere over time and distance through a complex series of photochemical reactions involving hydrocarbons (HC) and nitrogen oxides (NO_x), which are carried downwind as the photochemical reactions occur. O_3 standards are violated most often in the Santa Clara, Livermore, and Diablo Valleys, because local topography and meteorological conditions favor the buildup of O_3 and its precursors there.

In 1983, emissions from motor vehicles were the source of 87 percent of the CO, 39 percent of the HC, 62 percent of the TSP, nine percent of the SO_x, and 54 percent of the NO_x emitted in San Francisco./4/ These percentages are expected to apply reasonably well to current conditions.

In response to the Bay area's O_3 and CO non-attainment designations, the Association of Bay Area Governments (ABAG), BAAQMD, and the Metropolitan Transportation Commission (MTC) prepared and adopted the *1982 Bay Area Air Quality Plan* (*1982 Plan*)./5/ The *1982 Plan* established schedules and strategies to comply with federal O_3 and CO standards established under the Clean Air Act by December 31, 1987. The deadline has now passed, and the Bay area remains a non-attainment area for O_3 and CO (standards are occasionally violated). The Clean Air Act Amendments of 1990 require that within three years of enactment (November 15, 1990), the State submit to the U.S. Environmental Protection Agency (EPA) a revised State Implementation Plan.

Effective January 1, 1989, the California Clean Air Act provides for the designation of districts into three classes: moderate (defined as an area which can attain state and federal air quality standards by December 31, 1994), serious (a district that the ARB determines cannot attain the state air quality standards until after December 31, 1994, but by no later than December 31, 1997), and severe (a district that the ARB determines cannot attain the state air quality standards until after December 31, 1997, or for which the ARB is unable to specify an attainment date). In each case, the Act specifies strategies that must be adopted. In all cases, plans are required to demonstrate a five percent per year reduction in the district-wide emissions for each non-attainment pollutant or its precursors, unless the ARB determines that the alternative emission reduction strategy is equal to or more effective than district-wide emission reductions in improving air quality or that despite inclusion of every feasible measure and an expeditious adoption schedule, the district is unable to achieve a five percent reduction per year. The ARB and the BAAQMD are in the process of determining into which classification the BAAQMD falls. The BAAQMD expects to have a draft determination of the district's classification in February 1991 and a final determination by June 1991./6/

NOTES - Air Quality

/1/ State standards for particulate matter changed in 1983 and federal standards changed in 1987 to concentrate on fine particulate matter (PM_{10}) which has been demonstrated to have health implications when inhaled. The previous state and federal particulate standards were 100 micrograms per cubic meter (ug/m^3) and 260 ug/m^3 of particulates, respectively. The present state and federal PM_{10} standards are 50 ug/m^3 and 150 ug/m^3, respectively, of fine particulate matter. Although both the previous and present particulate standards are measured in ug/m^3, under the PM_{10} standards only those particulates 10 microns or less in size are measured. The BAAQMD (Thomas Perardi) has stated that TSP includes about 50 percent to 60 percent of particulates of 10 microns or less; thus, the TSP standards are generally equivalent to the PM_{10} standards. BAAQMD is presently monitoring PM_{10} at seven Bay area monitoring stations, including the station at 16th and Arkansas Streets in San Francisco.

/2/ Association of Bay Area Governments, AQMP Tech Memo 33, "Summary of 1979/80 Hotspot Monitoring Program," Berkeley, California, June 1980.

/3/ Association of Bay Area Governments, AQMP Tech Memo 40, "Results of the 1980/81 Hotspot Monitoring Program for Carbon Monoxide," Berkeley, California, January 1982.

/4/ Bay Area Air Quality Management District (BAAQMD), "Base Year 1982 Emissions Inventory, Summary Report," San Francisco, California, November 1, 1983.

/5/ Association of Bay Area Governments (ABAG), BAAQMD, and MTC, 1982 Bay Area Air Quality Plan, Berkeley, California, December 1982.

/6/ Patrick Navis, California Air Resources Board Liason to the Bay Area Air Quality Management District, California Air Resources Board, telephone conversation, January 8, 1991.

An application for environmental evaluation of a development proposal on the site was filed on February 28, 1990 with the Department of City Planning, Office of Environmental Review. On February 28, 1991, on the basis of an Initial Study, the Office of Environmental Review determined that an Environmental Impact Report (EIR) was required. Issues determined as a result of the Initial Study to be either insignificant, or to be mitigated through measures included in the project, and therefore to require no further environmental analysis, included: Glare, Housing, Operational Noise, Construction Equipment Air Quality, Utilities/Public Services, Biology, Hydrology, Water Quality, and Energy/Natural Resources. Therefore, this document does not discuss these topics (see Appendix A, pp. A.1 to A.30 for the Initial Study).

CUMULATIVE CONTEXT

The impacts generated by the project would contribute to cumulative impacts that have been analyzed for the year 2000 in three Program EIRs published by the Department of City Planning. They are the Mission Bay EIR Final EIR certified August 23, 1990, 86.505E), the South of Market EIR (Final EIR certified December 7, 1989, 85.463EZM), and the Downtown Plan EIR (Final EIR certified October 18, 1984, EE81.3). The Mission Bay EIR also presents information on cumulative conditions in 2020./1/ The Mission Bay Final EIR presents the most current, consistently derived forecasts of housing units and resident population. The Mission Bay Final EIR also presents distinct forecasts for areas other than the C-3 Districts and South of Market area, which together define the "Downtown & Vicinity": the Northeast Waterfront, Civic Center / South Van Ness, and Mission Bay area.

The Mission Bay and South of Market Final EIRs also incorporate assumptions of growth and/or change in employment and building space for the rest of San Francisco and the Bay Area region. Those citywide and regional forecasts are more general than those produced for the areas within the Downtown & Vicinity, but are sufficiently detailed for purposes of providing the proper context for analyzing cumulative environmental impacts.

The Downtown Plan EIR contains other cumulative impact information regarding such topics as energy consumption, community services and seismic effects that remains current and valid, and is applicable to the Natoma Mews project.

Where information from these three program EIRs is presented in the Natoma Mews EIR, it will be incorporated by reference with a summary, pursuant to CEQA Sections 21061 and 21100 (see also State CEQA Guidelines Section 15150). Those reference documents are available for public review at the San Francisco Department of City Planning, 450 McAllister Street, San Francisco.

These forecasts account for a decline rather than previously anticipated growth in employment in the C-3 District and elsewhere in the Downtown & Vicinity during the early 1980's; provide forecasts of space associated with employment growth in the future; and take into account specific buildings that have been proposed or approved, or are under construction that would accommodate a portion of the employment increase forecast. The forecasts go beyond the timeframe during which the known quantity of building space would be built and absorbed.

In summary, the forecasts show about 94,459,000 to 94,884,000 sq. ft. of occupied office space in the Downtown & Vicinity in the year 2000. The range is based on different amounts of office space in Mission Bay, depending on the development program approved and built. This is an increase of about 25,500,000-25,900,000 sq. ft. over the amount existing in 1985 (the setting year established for the analysis). The forecasts account for demolition and new construction, and for conversion of existing buildings from non-office to office uses in the future. It also accounts for absorption of several million sq. ft. of office space vacant in 1985 and another several million approved or under construction as of 1985. A five percent vacancy rate is assumed in year 2000. A relatively small amount of the total would be proposed and approved between 1986 and 1997 (to be built and absorbed by 2000). (See Mission Bay EIR, Vol. III, pp. XIV.B.37-41.) About 75 percent of the office space would be in the C-3 District. As the proposed project is primarily residential, it would contribute marginally, approximately 0.02 percent in 2000, to the total future amount of office space in the Downtown & Vicinity.

Additionally, a housing space forecast was prepared for the Mission Bay EIR. The geographical area for which the forecasts were made is not specifically limited to the C-3 District; for the Mission Bay EIR, specific forecasts were made for five

separate districts: Downtown & Vicinity, Northeast, Northwest, Southeast and Southwest. The C-3 District is within the Downtown & Vicinity; the boundaries of the Downtown & Vicinity extend South of Market Street to roughly the U.S. 101 freeway and 16th Street. The forecasting method and background is described in the Mission Bay EIR (pp. VI.C.37-38, and Appendix C pp. XIV.C. 14-19 and XIV.C.21-29)./2/

In summary, the Mission Bay EIR forecasts show about 32,080 to 34,730 housing units in the Downtown & Vicinity in the year 2000, an increase of about 6,440 to 9,090 units over the number of housing units existing in 1986. The range of additional housing units forecast depends on which Mission Bay development scenario is approved and built; background (excluding Mission Bay development) housing production is forecast at 460 housing units added to the Downtown & Vicinity each year between 1986 and 2000. The proposed Natoma Mews project would contribute about eight percent of the total housing units added to the Downtown & Vicinity between 1986 and 2000. The Mission Bay EIR forecasts a resident population in the Downtown & Vicinity of 57,420 to 62,650 in 2000, an increase of about 11,090 to 16,320 persons, depending on the development scenario for Mission Bay; the Mission Bay EIR forecasts of population assumed on average household size of 2.3 persons-per-household for 1986 through 2000, for Downtown & Vicinity and for the City.

A. LAND USE AND ZONING

LAND USE

Development of the residential site would remove 32,900-sq. ft. parking lot (striped for 134 spaces on a valet parking system) for the construction of a 49-story building containing residential, retail and off-street parking uses. The office use would be located on a 4,580-sq. ft. site (currently containing 16 spaces of off-street parking). The proposed project would add about 444,430 gross square feet (gsf) of residential space, about 107,350 gsf of new off-street parking space, about 13,240 gsf of retail space (of which about 8,820 gsf would be in the ground floor of the residential building, about 1,190 gsf would be in the freestanding retail building, and about 3,230 gsf would be in the office/retail building), about 18,600 gsf of office space (including about 200 gsf in the residential building leasing office), about 11,080 gsf of health club space, about 5,600 gsf of private common open space (excluding 560 gsf

of open space accessible only to townhouse units), and about 9,900 gsf of public open space. All proposed uses, except parking, would be new uses on the residential site; the office site currently contains parking and therefore all proposed uses would be new uses on the site. The residential site currently contains 134 tandem valet public parking spaces and the office site contains 16 parking spaces for Dahl-Beck Electric Co.; the proposed project would replace the existing spaces with a total of about 378 marked parking stalls, which could accommodate a total of 406 cars with 28 of the stalls able to accommodate two cars parked in tandem each, thereby adding 228 net new parking spaces to the site of which about 174 stalls (out of the total 378 stalls) would be valet parking. The 204 independently-accessible parking stalls would provide parking for 232 cars, including 28 cars parked in tandem.

The project site is within the South of Market area, an area traditionally characterized by businesses such as light-industrial (manufacturing), printing, retail, and office. High-rise office development in the South of Market has replaced older light-industrial and low-density office uses with high-intensity office uses. Residential uses in the area have generally consisted of enclaves of residential flats along side streets south of Folsom Street and west of Third Street.

The proposed project would represent the introduction of a relatively high-density residential development on a site that is surrounded by existing older low-rise light-industrial and office buildings, and newer high-rise office buildings.

Parts of the South of Market area, particularly southwest of the project block, have been developed with high-intensity residential uses, in new buildings of seven to 12 stories. The majority of the new recent residential developments have been constructed as part of San Francisco Redevelopment Agency projects, including St. Francis Place (410 rental units at Third and Folsom Streets), Museum Parc (233 condominium units at Third and Folsom Streets), and two federally-subsidized residential projects (737 Folsom Street and Fourth and Howard Streets) for senior citizens, adjacent to the Moscone Convention Center. Other recent residential developments to the east of the project block include the Rincon Towers project (320 units at Spear and Howard Streets), the Hills Brothers Plaza (85 condominium units at Steuart and Folsom Streets), and the Bayside Village and South Beach developments in the area of Brannan and Beale Streets.

The proposed project would represent an expansion of high-density residential development in an area which recently has experienced a trend of high-rise office development particularly in the area surrounding the Transbay Terminal.

DOWNTOWN EXTENSION OF THE PENINSULA COMMUTE SERVICE

As described in Chapter IV, Environmental Setting, p. 47, two alternative alignments under study for the Peninsula Commute Service (PCS) downtown extension would incorporate a station adjacent to the project site./3/ Alignment Alternative 5A would turn from Main Street westbound to an underground station on the north side of Howard Street (south of Natoma Street) between First and Second Streets, about 100 ft. east of Second Street. The subsurface project parking levels would be within about 30 ft. of the underground station with Alternative 5A.

Alignment Alternative 5B would turn from Second Street eastward to an underground station on the north side of Howard Street about midblock between Second and First Streets to Beale Street. With Alternative 5B, the underground station would occupy the subsurface area within about 400 ft. of the project site; the subsurface project parking levels would not be affected by Alternative 5B.

The third alternative alignment under current study, Alternative 4A, would run under Second Street (within about the 120 ft. of the project site) north to Market Street and would not affect, or be affected by, the project. The impacts of all three of these Alternatives will be evaluated in an EIS currently in preparation by the Peninsula Corridor Study Joint Powers Board.

ZONING

The City Planning Code contains controls regarding scale, intensity, and location of growth in downtown San Francisco; architectural preservation; open space; sunlight access; wind criteria; and transportation. The relationship of the project to selected sections of the City Planning Code is discussed here and summarized in Table 3.

The basic Floor Area Ratio (FAR) for the C-3-O district is 9:1 (the residential site), and the basic FAR for the C-3-O (SD) district is 6:1 (the office site). Floor Area Ratio is the ratio of gross floor area to site size. A number of building uses can be excluded

TABLE 3: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE

Height (Section 260 and 263.9)/a/	City Planning Code Requirement/Limits	Residential Project	Office Project
450-S Zone	450 ft. (495 ft. with allowable exceptions)	N/A	80 ft.
500-S Zone	500 ft. (550 ft. with allowable exceptions)	456 ft./b/	N/A
550-S Zone	550 ft. (605 ft. with allowable exceptions)	456 ft./b/	N/A
Bulk (Section 270)			
Base Height	62 ft.	38 ft.	30 ft.
Lower Tower			
Length	160 ft.	118 ft.	78 ft.
Diagonal	190 ft.	144 ft.	101 ft.
Maximum Avg. Floor Area	17,000 sq. ft.	11,170 sq. ft.	3,680 sq. ft.
Maximum Floor Area	20,000 sq. ft.	13,410 sq. ft.	3,680 sq. ft.
Upper Tower			
Length	130 ft.	108 ft.	N/A
Diagonal	160 ft.	118 ft.	N/A
Maximum Avg. Floor	12,000 sq. ft.	8,680 sq. ft.	N/A
Maximum Floor	17,000 sq. ft.	9,150 sq. ft.	N/A
Volume Reduction (above 282 ft.)	7%	22%	N/A
FAR (Section 124)	9:1 Basic, 18:1 Maximum with TDR	15.1:1	4.1:1
TDR (Section 128)	Allowable up to 18:1 FAR, equivalent to a maximum of 296,235 gsf on this site, in addition to basic FAR.	200,800 sq. ft. of TDR would be used on the development site (equivalent to about 6.1:1 FAR in addition to basic FAR)./c/	N/A
Dwelling Unit Density (Section 215)	One dwelling per 125 sq. ft. of lot area or greater density permitted with Conditional Use Authorization.	The residential project would develop 509 dwelling units on the 32,915 sq. ft. site (a density of one dwelling unit per about 65 sq. ft. of lot area).	N/A
Architectural Resources (Article 11)	Designates buildings in Categories I to IV, and into six Conserva-	The residential and office project sites are not currently occupied by any	

(Continued)

TABLE 3: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE (Continued)

	City Planning Code Requirement/Limits	Residential Project	Office Project
	tion Districts, based on architectural merit, with related provisions regarding preservation.	existing structure, and therefore the project would not require demolition of any existing building. The project sites are adjacent to, but are not within the New Montgomery-Second Street Conservation District.	
Open Space (Sections 135 and 138)	Residential: 36 sq. ft. of private usable open space required per dwelling unit. Common usable open space may be substituted for private open space in amount of 1.33 times the requirement for private open space. Commercial (office, retail, health club, and non-accessory parking): one square foot of open space required per 50 gross sq. ft. of net new space. The public open space requirement would be a total of about 1,724 sq. ft.	Residential project would provide 36 sq. ft. or more per unit of private usable open space, as exterior balconies, for 424 of 509 proposed units. No private open space would be provided for 85 units. Residential project would provide 5,600 sq. ft. private common open space at the podium level for project residents. The private common usable open space requirement would be a total of 4,070 sq. ft./d/ The project would provide 9,900 sq. ft. of public open space on-site at the ground floor	Office project would not include any open space on-site. About 420 sq. ft. would be required under Code Section 138. The public open space requirement for the office project would be met by public open space at the ground floor of the residential project, across Natoma Street.
Shadow (Section 147 and 295)	Minimize substantial shadow impacts on public plazas and other publicly accessible spaces, without undully restricting development potential; consider duration, area, and importance of sunlight to utility of open space. No new shadow on Recreation and Park Department property from one hour after sunrise to one hour before sunset (per Proposition K).	The residential project would add new shadow to existing open space areas in the project vicinity. The project would not cast any new shadow on property under the jurisdiction of Proposition K. The residential project would add new shadow to Minna, Mission, Natoma and Second Streets during morning and afternoon hours.	The office project would not add new shadow to existing open space areas in the vicinity, and would not cast any new shadow on property under the jurisdiction of Proposition K. The office project would add new shadow to Natoma Street during morning and afternoon hours.

(Continued)

TABLE 3: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE (Continued)

	City Planning Code Requirement/Limits	Residential Project	Office Project
Wind (Section 148)	Ground-level winds may not exceed (more than ten percent of the time year round between 7:00 a.m. and 7:00 p.m.), 11 mph in areas of substantial pedestrian use and seven mph in public seating areas.	The project would not exceed the wind criteria and thus would comply with these provisions.	The project would not exceed the wind criteria and thus would comply with these provisions.
Art (Section 149)	Public accessible art equal to one percent of construction cost.The project would comply.	The project would comply.	N/A
Parking (Section 151)	One space per four dwelling units is required. Up to 150 percent of minimum number of required spaces, plus seven percent of the gross floor area of uses without a parking requirement, is permitted as an accessory use. Additional parking may be permitted as a Conditional Use. The residential use would require 127 parking spaces./e/ Off-street parking is not required for commercial uses in the C-3-O District or in the C-3-O(SD) District.	378 stalls of off-street parking would be provided which would accommodate 406 vehicles, of which 174 vehicles could be accommodated under tandem valet operation and 232 cars could be accommodated in 204 independently accessible stalls (28 stalls would be oversized, accommodating two cars parked in tandem).	Off-street parking would not be required and would not be provided.
Off-Street Loading (Section 152.1)	Two spaces per 200,001-500,000 sq. ft. of residential apartment space, plus one space for 10,001 to 30,000 sq. ft. of retail space plus 0.1 space per 10,000 sq. ft. of office space. The project would require three full-size spaces./f/	One full-size truck loading space and two van spaces are proposed for within the residential building. With the provision of a third full-size loading space on the private driveway, the project would satisfy the City Planning Code requirement.	No on-site freight-loading spaces are required or proposed for the office project.

(Continued)

TABLE 3: RELATIONSHIP OF THE PROJECT TO THE CITY PLANNING CODE (Continued)

SECTION 309: EXCEPTIONS REQUIRED FOR THE PROJECT

Section 132.1: Exterior Setback From Center of Street and Interior Property Lines.

Requirement: A 15 ft. setback from interior property lines and from the center of the abutting street (Section 132.1(c)). The setback is required at the top of the building base, at a height 1.25 times the width of the principal street abutting the site and set back by increasing horizontal distance, in compliance with City Planning Code Section 132.1(c), Chart A. Planning Code separation of towers controls for the project would require a minimum setback of 19 ft. from Minna Street center line at the 37th floor, a minimum setback of 21 ft. at the 40th floor, setbacks of 23 ft. at the 43rd floor and 25 ft. at the 46th floor.

Exception: Between the 37th and 41st floors, the project would be set back about 19 ft. from the center of the Minna Street right-of-way. The project would be set back about 22 ft. from the center of the Minna Street right-of-way at the 42nd through 46th floors, which would be less than the required setback. Exception to the separation of towers requirements may be allowed in accordance with the provisions of City Planning Code Section 309 under Section 132.1(c)(2)(A-B), which allows exceptions when compensating recesses are provided at least equivalent to the volume of the encroachment.

/a/ Section numbers in parentheses refer to sections of the City Planning Code.

/b/ Excluding the top 16 ft. of the 17 ft. six inch rooftop mechanical penthouse as permitted under Section 260(b)(1)(A) of the City Planning Code; excluding also the three-foot six-inch parapet, as permitted under Section 260(b)(2)(A) of the City Planning Code.

/c/ The site from which development rights would be transferred has not been identified. The FAR on the combined preservation and development sites would be 9:1, if both are in this Use District. The Downtown Plan excludes from FAR: mechanical and building service space; ground-floor internal circulation areas; ground-floor and mezzanine-level (at the discretion of the City) retail, personal service and restaurant space up to 75 percent of the area of the ground-floor interior; and exterior open spaces.

/d/ Under Section 135(d)(1) of the City Planning Code, in a C-3 District a minimum of 36 sq. ft. of private usable open space is required per dwelling unit, or 1.33 times the minimum private usable open space required as common usable open space. The common usable open space requirement for the units with no private open space proposed would be 4,070 sq. ft. common open space required.

/e/ Under Section 204.5 of the City Planning Code, accessory parking is defined as 150 percent of the required number of parking spaces plus seven percent of the gross floor area of uses without a requirement for off-street parking (health club space) 193 parking spaces out of 378 parking spaces proposed with the project could be considered accessory (127 spaces required times 150 percent equals 191 spaces, plus seven percent of 11,080 gsf equals 770 sq. ft. for two independently-accessible spaces). Under Section 157 of the City Planning Code a Conditional Use Authorization may allow the amount of parking exceeding that classified as accessory (185 parking spaces with the project, consisting of all 174 valet-operated spaces and 11 self-park spaces).

/f/ Under Section 153(a)(6) of the City Planning Code, in the C-3 District a substitution of two service vehicle spaces for each required off-street freight loading space may be made, provided that a minimum of 50 percent of the required number of spaces are provided for freight loading.

SOURCE: Environmental Science Associates, Inc.

from the gross floor area calculation: ground-floor building service and internal circulation; cultural, religious and social service areas; ground-floor retail, restaurant, and personal service space up to 75 percent of ground-floor open space and interior areas; accessory off-street parking equal to or less than 150 percent of the required number of spaces (Section 102.9(b)1-16). Development greater than the basic 9:1 FAR is allowable up to a maximum of 18:1 FAR, through the transfer of development rights (TDR) from a site or sites within the same zoning district that contain a significant or contributory building or contains a designated landmark structure, with unused potential floor area, or contain a Category V building eligible for transfer of TDR. The combined FAR of the preservation (transferor) and receiver sites may not, however, exceed 9:1 in this Use District. The building on the development site receiving TDR must comply with all limitations imposed by the City Planning Code, including review under Section 309: Permit Review in C-3 Districts. About 200,800 sq. ft. of TDR is proposed to be transferred to the residential site from as yet unidentified sites. The office building would have an FAR of less than 6:1, and would not require TDR.

The basic maximum residential unit density permitted in the C-3 Districts is one dwelling unit per 125 sq. ft. of lot area. This density may be increased with Conditional Use Authorization under City Planning Code Section 215(b). For the project site, the applicable maximum permitted residential density without Conditional Use Authorization would be 263 dwelling units on the 32,915-sq. ft. residential project site. The proposed residential tower would contain 509 dwelling units on the site, resulting in a density ratio at one dwelling unit per 65 sq. ft. of lot area.

The project site does not currently contain any structures, and therefore development of the project would not have an effect on any building categorized as architectually significant or contributory under the Downtown Plan.

The City Planning Code requires off-street parking for residential and retail development in the C-3-O District. Under Planning Code Section 151, one space is required for each four dwelling units in C-3 Districts. For the 509 residential units proposed, the basic requirement would be 127 off-street parking spaces. The City Planning Code does not require off-street parking for commercial projects in the C-3 Districts; therefore, the office, retail and health club uses proposed would not require

off-street parking. Under Section 102.9(b)(6), floor area for accessory parking and loading space, as defined in Section 204.5, would not be counted in the FAR calculation of the residential building. Accessory parking may include up to 150 percent of the required number of parking spaces and up to seven percent of gross floor area of a use without an off-street parking requirement; off-street parking area in excess of 150 percent of the required spaces and seven percent of the gross floor area of a use without a parking requirement would require Conditional Use Authorization and would apply to the FAR. The proposed residential project would provide about 378 marked parking spaces (about 140,250 gsf), of which approximately 185 parking spaces (about 44,160 gsf) would be in excess of parking as an accessory use and would therefore require Conditional Use Authorization./4/

The residential site is within two adjacent Height and Bulk Districts; Lots 46, 53, and 54 are within the 500-S Height and Bulk District in which the maximum allowable height is 500 ft. Structures up to 550 ft. in height are allowable under the provisions for optional upper tower extensions. Lot 45A of the residential site is within the 550-S Height and Bulk District, in which the maximum allowable height is 550 ft. (structures up to 605 ft. in height are allowable with the provisions for upper tower extension). At a proposed height of about 456 ft. (excluding the top 16 ft. of the 17 ft., six-inch mechanical penthouse as permitted under Section 260(b)(1)(A), and excluding the three foot-six-inch tall rooftop parapet as permitted under Section 260(b)(2)(A) of the City Planning Code), the proposed residential project would be 94 ft. lower than the maximum allowable height of 550 ft. in the 500-S Height and Bulk District. The office site is within the 450-S Height and Bulk District, in which the basic maximum allowable height is 450 ft. (maximum height of 495 ft. is allowable with an upper tower extension). At a total height of about 80 ft., the office building would be 370 ft. lower than the basic allowable maximum height of 450 ft.

The S-bulk designation controls building dimensions, floor sizes and bulk through Downtown Plan Bulk Control Zone Charts B and C. Essentially, these bulk controls require setbacks, smaller floor sizes and slimmer building profiles with increased building height. The controls require a base zone not exceeding 1.25 times the width of the widest abutting street, or 50 ft., whichever is greater (50 ft. for the project),

delineated by a setback, cornice or other architectural feature. The maximum height of the base allowed by the S-bulk controls is 62 ft. (50 x 1.25 = 62.5 ft.). The base of the residential project would be about 38 ft. tall and would consist of the ground floor through third floor (including the two above-grade parking levels). The base of the office building would be about 30 ft. tall and would consist of the first (ground) and second levels.

The residential project's lower tower would extend from the building base, at about 38 ft., to a height of about 282 ft. through the 29th floor. The upper tower would extend above about 282 ft. to a height of about 456 ft. through the 48th floor. Sixteen feet of the 17-ft. six-inch mechanical penthouse, and the three-foot six-inch rooftop parapet would rise above the upper tower. The office project's third through sixth (top) levels would extend above the building base (at 30 ft.) to a height of about 80 ft, comprising the lower tower.

The residential and office projects would be within the lower tower limits of the S-bulk designation controls. In the lower tower, the residential project would have a maximum average floor area of about 11,170 sq. ft. and a maximum floor area of about 13,410 sq. ft., within the bulk limits of a maximum average floor area of 17,000 sq. ft. and a maximum floor area of 20,000 sq. ft. The residential building's lower tower length and diagonal dimensions (118 ft. and 144 ft., respectively) would also fall within the lower tower bulk limits for length and diagonal dimensions (160 ft. and 190 ft., respectively) under the City Planning Code. The office/retail buildings' lower tower length and diagonal dimensions (78 ft. and 101 ft., respectively) would also be within the lower tower bulk limits under the City Planning Code.

The residential project would be within the upper tower limits of the S-bulk designation controls. The upper tower of the project would have length and diagonal dimensions of about 108 ft. and 118 ft., respectively, within the bulk control maximums of 130 ft. length and 160 ft. diagonal. The project's upper tower would have a maximum average floor area of about 8,680 sq. ft., which would be below the maximum average floor area of 12,000 sq. ft. allowable under the City Planning Code, and would have a maximum floor area of about 9,150 sq. ft., which would be below the maximum floor area of 17,000 sq. ft. specified by the City Planning Code.

The controls of the S-bulk designation require a volume reduction in the upper tower, above about 282 ft. for a 456-ft. tall building, of about seven percent; the residential project would have a volume reduction of about 22 percent.

The City Planning Code requires a 15 ft. setback from interior property lines and from the center of the abutting street, in the S-Bulk district (Section 132.1(c)). The setback is required at the top of the building base, at a height 1.25 times the width of the principal street abutting the site. For the residential project, a 15 ft. setback would be required at a height of 44 ft. above ground level (1.25 times the 35 ft. width of Natoma Street), to 300 ft. above ground level.

At the fourth (podium) level (35 ft. above ground), the project would be set back by about 16 ft. from the centerline of Minna Street, and would be set back by a minimum of 23 ft. from the interior property line and about 20 ft. from the centerline of Natoma Street. At heights above 300 ft. (at the 32nd floor), the residential building would be required to be set back by increasing horizontal distance, in compliance with City Planning Code Section 132.1(c), Chart A. Between the 37th and 41st floors and between the 43rd and 46th floors, the building would be set back less than the City Planning Code requirement. The project would be set back about 19 ft. from the center of the Minna Street right-of-way; Planning Code separation of towers controls for the project would require a minimum setback of 19 ft. from Minna Street center line at the 37th floor, and a minimum setback of 21 ft. at the 41st floor. The project would be set back about 22 ft. from the center of the Minna Street right-of-way at the 42nd through 46th floors, which would be less than the required setbacks of 23 ft. at the 43rd floor and 25 ft. at the 46th floor. Exception to the separation of towers requirements may be allowed in accordance with the provisions of City Planning Code Section 309, and with the provisions of City Planning Code Section 132.1(c)(2)(A-B), which allows exceptions when compensating recesses are provided at least equivalent to the volume of the encroachment.

The City Planning Code requires usable open space for dwelling units in the C-3 District, in a ratio of 36 sq. ft. of private open space per dwelling unit, under Section 135(d). Common usable open space may be substituted for private open space, in a ratio of 1.33 times the private open space requirement.

Private usable open space would be provided with exterior balconies, of at least 36 sq. ft., for 424 of the 509 proposed residential units. No private open space would be provided for a total of 85 units. The common usable open space requirement for the units with no private open space proposed would be 4,070 sq. ft. The project would include a total of about 5,600 sq. ft. of common usable open space at the podium level, excluding about 560 sq. ft. of open space at the podium which would serve as the primary access area to the townhouse residential units.

The City Planning Code requires usable indoor or outdoor open space, accessible to the public, as part of new downtown commercial development. The ratio of usable open space to new building space in the C-3-O and C-3-O (SD) is one sq. ft. of open space for every 50 sq. ft. of non-residential area with an open space requirement (retail, office, health club and non-accessory parking uses per Section 138), or about 86,200 sq. ft. total for the project, yielding an open space requirement of 1,724 sq. ft. The project would include about 9,900 sq. ft. of exterior public open space on the residential building site. The public open space would be provided within the proposed private through-street, consisting of pedestrian walkway and seating areas on either side of, and physically separated from, the vehicle travel and short-term parking lane for valet parking operations (see Figure 3 on p. 27).

The City Planning Code requires that shadows on publicly accessible open space be minimized (Section 147). New buildings are to be shaped, consistent with the dictates of good design and without unduly restricting the development potential of the site, to reduce substantial shadow impacts. Among the factors for the determination of shadow impact are: amount of area shadowed; duration of the shadow; and the importance of sunlight to the utility of the type of open space being shadowed. (See pp. 93 to 116 for discussion of shadow impacts of the project). The sunlight ordinance implemented by Section 295 of the City Planning Code requires disapproval of any project shading Recreation and Park Department property between one hour after sunrise and one hour before sunset, unless adverse effects of such shadows are found to be insignificant by the City Planning Commission, in consultation with the Recreation and Park Commission. The project would not add any new shadow to open space currently under the jurisdiction of, or proposed for acquisition by, the Recreation and Park Department.

The City Planning Code requires that ground-level winds may not exceed, more then ten percent of the time year round between 7:00 a.m. and 6:00 p.m., 11 mph in areas of substantial pedestrian use and seven mph in public seating areas (Section 148). The project would not exceed any of these wind limits (see pp. 117 to 119 for discussion of wind impacts of the project).

The City Planning Code requires two full-size freight-loading spaces per 200,001 sq. ft. - 500,000 sq. ft. of residential apartment area, plus 0.1 off-street freight loading space for every 10,000 sq. ft. of office space, and one space for 10,001 to 30,000 sq. ft. of retail space (section 152.1). Three full-size off-street freight loading spaces would be required for the project. Under Section 153(a)(6) of the City Planning Code, in the C-3 districts a substitution of two service vehicle spaces for each required full-size off-street freight loading space may be made, provided that a minimum of 50 percent of the required number of spaces are provided for freight loading. The project would provide one full-size freight loading space at the ground floor, and two loading van spaces in the first parking subsurface level (an equivalent total of one full-size loading space under Section 153(a)(6)). This would be one full-size freight loading space less than the three required for the project. One full-size freight-loading space is proposed for curbside at the northeast corner of the intersection of Natoma Street and the proposed street through the site. With the provision of the loading space on the private thoroughfare, the project would satisfy the City Planning Code requirement for provision of on-site loading spaces.

NOTES - Land Use, and Zoning

/1/ The Mission Bay EIR also analyzes impacts for year 2020, the estimated buildout date of the Mission Bay Project. The year 2020 analysis was necessary in that instance primarily to provide a comparison among the specific Mission Bay Alternatives at completion. That same condition would not apply here as the current project, if approved, would be constructed and occupied before 2000. As the future context is inevitably more speculative due to unknown future conditions regarding economic growth, technology, demographics etc., it is not warranted to analyze quantitative conditions for the year 2020 at the individual project level. Nonetheless, a brief summary of cumulative regional conditions as provided in the Mission Bay EIR is presented here for informational purposes.

/2/ The forecasts of future residential space and population, and an explanation of the methods used, can be found in the Mission Bay EIR Vol. II. pp. VI.C. 37-38, and Vol, III, Appendix C, pp. XIV.C.14-19 and XIV.C.21-29.

/3/ Discussion on the possible CalTrain extension is based on information provided by Morrison-Knudsen Engineers, Inc., and telephone conversations with Willard D. Weiss, P.E., Engineering Manager, Morrison-Knudsen Engineers, Inc., November 5 and 6, 1990 specific to potential effects on the 300 Howard Street project (89.589E).

/4/ Excluding entry and exit ramps, there would be a total of about 140,250 gsf of parking space (22 percent of the gross floor area of the residential project). For the project, 127 spaces would be required for 509 residential units (127 x 1.5 = 191 spaces), plus 7 percent of 11,010 gsf for health club = 193 spaces accessory parking. A total of about 44,160 gsf of proposed parking area would be non-accessory and therefore applicable to FAR, including all 174 valet operated spaces proposed and about 11 independently accessible spaces out of a total 204 marked, independently-accessible spaces. (about 32,030 gsf per three below-grade parking levels, times three equals 96,090 gsf, subtracting about 11,230 sq. ft. (about 3.740 sq. ft. per level) for elevator and ramp areas equals about 84,860 sq. ft., divided by 204 spaces equals about 416 sq. ft. per space).

B. URBAN DESIGN

The 475-ft.-tall, 49-story residential tower of the proposed project would be one of the tallest structures in the South of Market area. It would be about 90 ft. taller than the 100 First Street building on the project block northeast of the site, about 18 ft. taller than the approved 101 Second Street building immediately to the northwest of the site, and about 250 ft. taller than the approved 222 Second Street building one block south of the site. The residential project would be approximately the same height as the Pacific Telephone building one block west of the site. The building would be similar in scale to the high-rise buildings north and northeast of the project site, it would contrast in scale with the older, lower-scale buildings that border the project site and development located south, southwest and west of the site, including older buildings in the New Montgomery-Second Street Conservation District. The six-story office and retail building proposed would be similar in height and massing to structures in the immediate project vicinity and the older, lower-scale development located south and southwest of the project site.

The residential tower proposed would be built on a base that would consist of three levels. The ground floor would contain a lobby, approximately 8,820 gross square feet (gsf) of retail space and a vehicle and vehicle and pedestrian driveway connecting Natoma Street and Minna Street. The pedestrian area of the driveway would include approximately 9,900 gsf of public open space. The ground floor open space and retail space would provide pedestrian interest. The second and third levels would be reserved for parking for project residents.

The south facade of the base of the residential building, as measured at the three-story townhouse units, would rise 65 ft. above Natoma Street. The six-story street wall height is intended to relate the building at street level to the lower-scale development

located south and southwest of the project site, including the proposed six-story building that would be located across the street. Exterior setbacks above the base and at upper levels are intended to reduce the apparent bulk of the residential building from more distant viewpoints. The building would be stepped back horizontally at the 29th, 42nd and 47th floors above the podium level, and would be horizontally stepped in and notched at all four corners. The project would have architectural detailing comparable to the brick facade treatment incorporated by older buildings in the vicinity. The residential building would have arched window openings to terminate vertical facade elements, and mansard-style roofs topping the tower and the townhouse units.

The six-story office building, with exterior setbacks and its scale would be similar to the surrounding older structures. The ground-level retail space, with frontage on Natoma Street, would provide pedestrian interest.

The 49-story residential tower portion of the proposed project would be visible on the City's southern skyline viewed from the east, west and south. The tower would be visible from long-range viewpoints as well as neighboring buildings and street-level areas in surrounding blocks (see Figures 19 to 24, pp. 94 to 99). The residential project would be visible from Potrero Hill and from Twin Peaks. The project would appear to be near other high-rise development as part of the Downtown office district (see Figures 25 and 26, pp. 100 to 101). The building's mansard-style roof would contrast with the taller, more box-like buildings now forming much of the southern skyline. The project would appear as part of the downtown skyline's southern edge from southern approaches to the City, including the James Lick Skyway and Interstate 280 (see Figures 22 and 24).

C. SHADOW AND WIND

IMPACTS

Shadow

Open space in the project vicinity includes the Transbay Transit Terminal staging area, at the southeast corner of First and Mission Streets; the 100 First Street Sun Terrace; the Golden Gate University entry and seating area on the north side of Mission Street west of First Street; Tishman Plaza and Chevron Plaza on the south side of

SOURCE: Heller & Leake

Figure 19
Photomontage of Project Northeast Along Natoma Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 20
Photomontage of Project Northwest
Along Second Street at Folsom Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 21
Photomontage of Project Northwest
from Harrison Street at First Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 22
Photomontage of Project Northwest from Bay Bridge

SOURCE: Heller & Leake

Figure 23
Photomontage of Project and Approved Development
Northwest Along Second Street at Folsom Street

SOURCE: Heller & Leake

Natoma Mews ■

Figure 24
Photomontage of Project and Approved Development Northwest from Bay Bridge

MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

1 Bank of America	4 101 Second Street (approved)	7 75 Hawthorne	10 524 Howard (approved)	13 299 Second Street (approved)
2 Transamerica	5 222 Second Street (approved)	8 100 First Street	11 Embarcadero 4	14 300 Howard Street (approved)
3 Pacific Telephone	6 101 California	9 Fremont Center	12 Pacific Gateway	15 PROJECT

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 25
Long-Range View of the Project from Potrero Hill

MAJOR STRUCTURES EXISTING, PROPOSED AND UNDER CONSTRUCTION

1 Bank of America
2 345 California
3 Fremont Center
4 Pacific Gateway
5 100 First Street
6 101 Second Street (approved)
7 Pacific Telephone
8 524 Howard (approved)
9 222 Second Street (approved)
10 299 Second Street (approved)
11 300 Howard Street (approved)
12 PROJECT

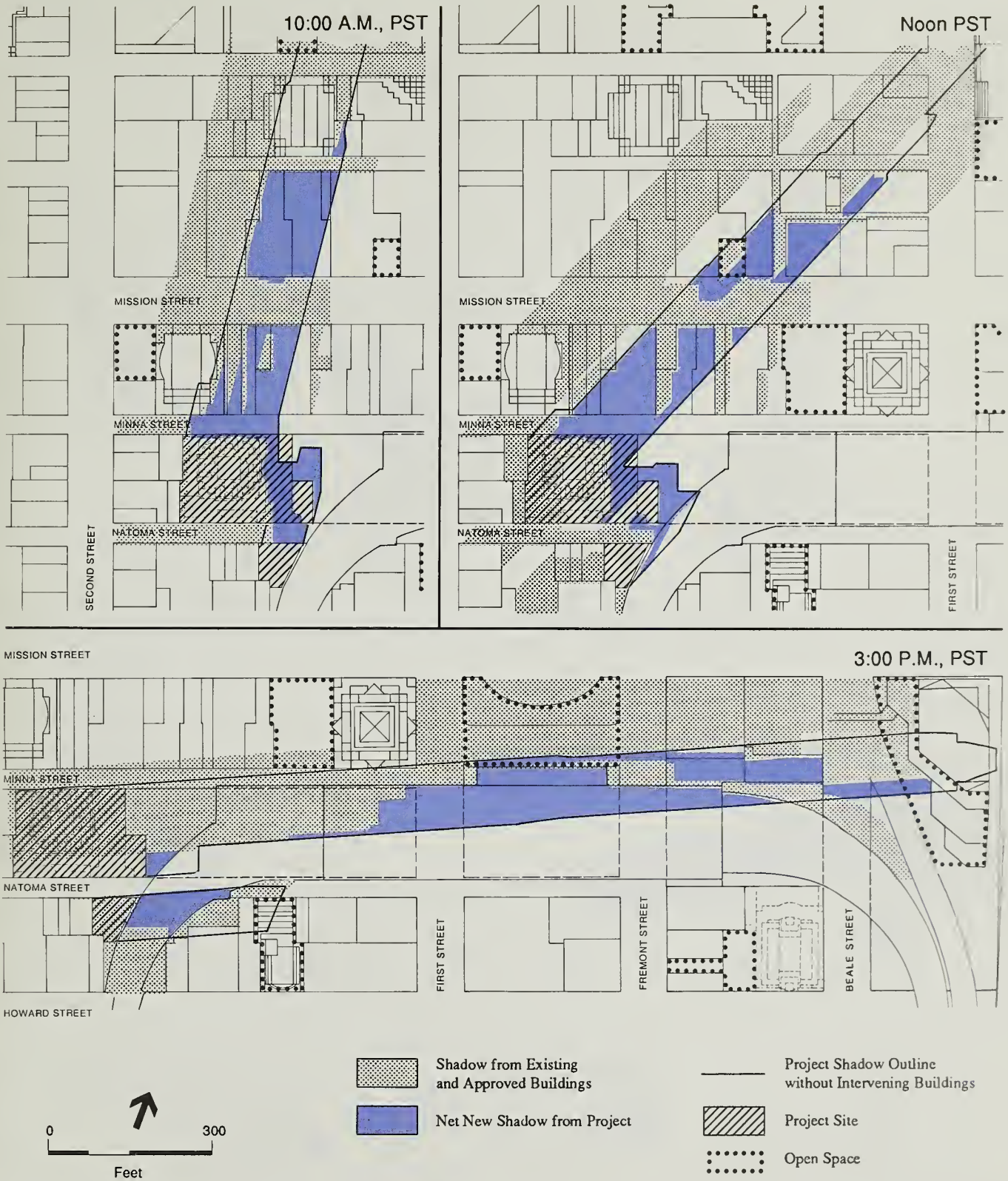
SOURCE: Environmental Science Associates, Inc.

Figure 26
Long-Range View of the Project from Twin Peaks

Market Street between First and Second Streets; Zellerbach Plaza and Citicorp Plaza, at the northeast and northwest corners, respectively, of the intersection of Sansome and Sutter Streets; the Wells Fargo Roof Garden and the McKesson Plaza at the intersection of Montgomery and Post Streets; Fremont Center Plaza on the east side of First Street north of Mission Street; Bechtel Plaza occupying areas on the east side of Fremont Street and the west side of Beale Street north of Mission Street; 425 Market Street Plaza, on Fremont Street between Market and Mission Streets; Pacific Gateway Plaza on the northern portion of the block bounded by Beale, Mission, Main and Howard Streets; Annie Alley in the block bounded by New Montgomery, Mission, Third and Market Streets; the Hotel Meridian ground and terrace areas on the west side of Third Street, between Mission and Market Streets, the 161 Sutter Street roof garden and Van Mehr Street plaza on the block bounded by Montgomery, Post, Kearny and Sutter Streets; the 333 Bush Street greenhouse and the 222 Kearny Street roof garden on the block bounded by Montgomery, Sutter, Kearny and Bush Streets. Approved, but not yet constructed, publicly accessible private open spaces in the project vicinity include plazas, greenhouses, or archades for the 101 Second Street, 524 Howard Street, 222 Second Street, 299 Second Street, and 300 Howard Street projects. Proposed publicly-accessible private open spaces in the project vicinity includes the One Second Street greenhouse.

The nearest open spaces protected by Proposition K, the Sunlight Ordinance (Section 295 of the City Planning Code), in the vicinity of the project are St. Mary's Square to the north, Union Square to the northwest, and the Embarcadero Center to the northeast, each of which is several city blocks from the project site. In addition, the proposed Rincon Park (located along the Embarcadero between Howard and Harrison Streets) would be subject to Proposition K protection if it were to be acquired or designated for acquisition by the Recreation and Park Commission.

Shadows patterns for existing and approved buildings in the project area and the project are shown for 10:00 a.m., noon and 3:00 p.m. for the four seasons: during winter and summer solstices when the sun is at its lowest and highest, and during the spring and fall equinoxes when the sun is at its midpoint. Figures 27 to 30 show existing and approved building shadows and net new shadow due to the project.



SOURCE: Environmental Science Associates

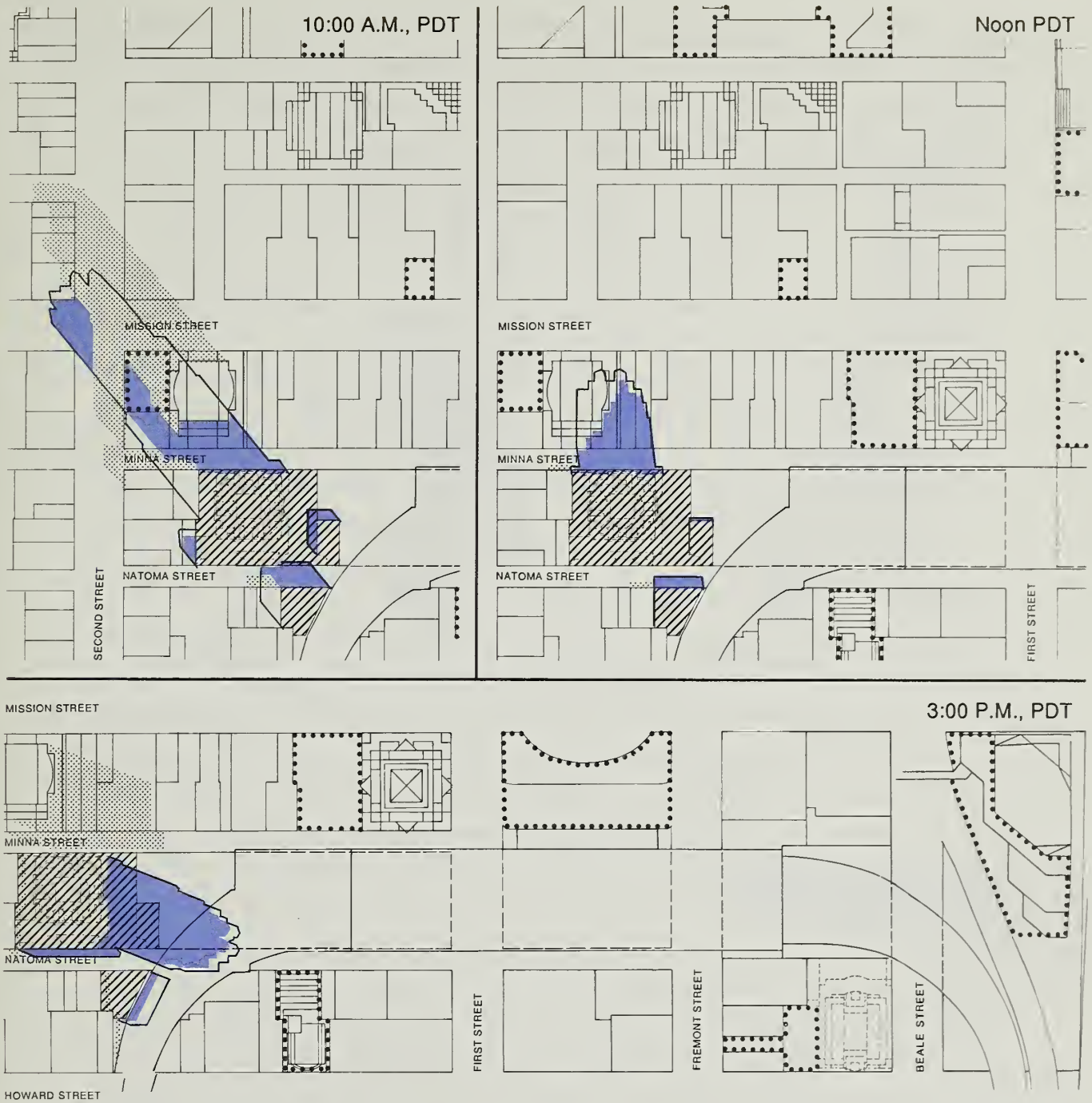
Natoma Mews ■

Figure 27
Project Shadow Pattern:
December 21

SOURCE: Environmental Science Associates

Natoma Mews ■

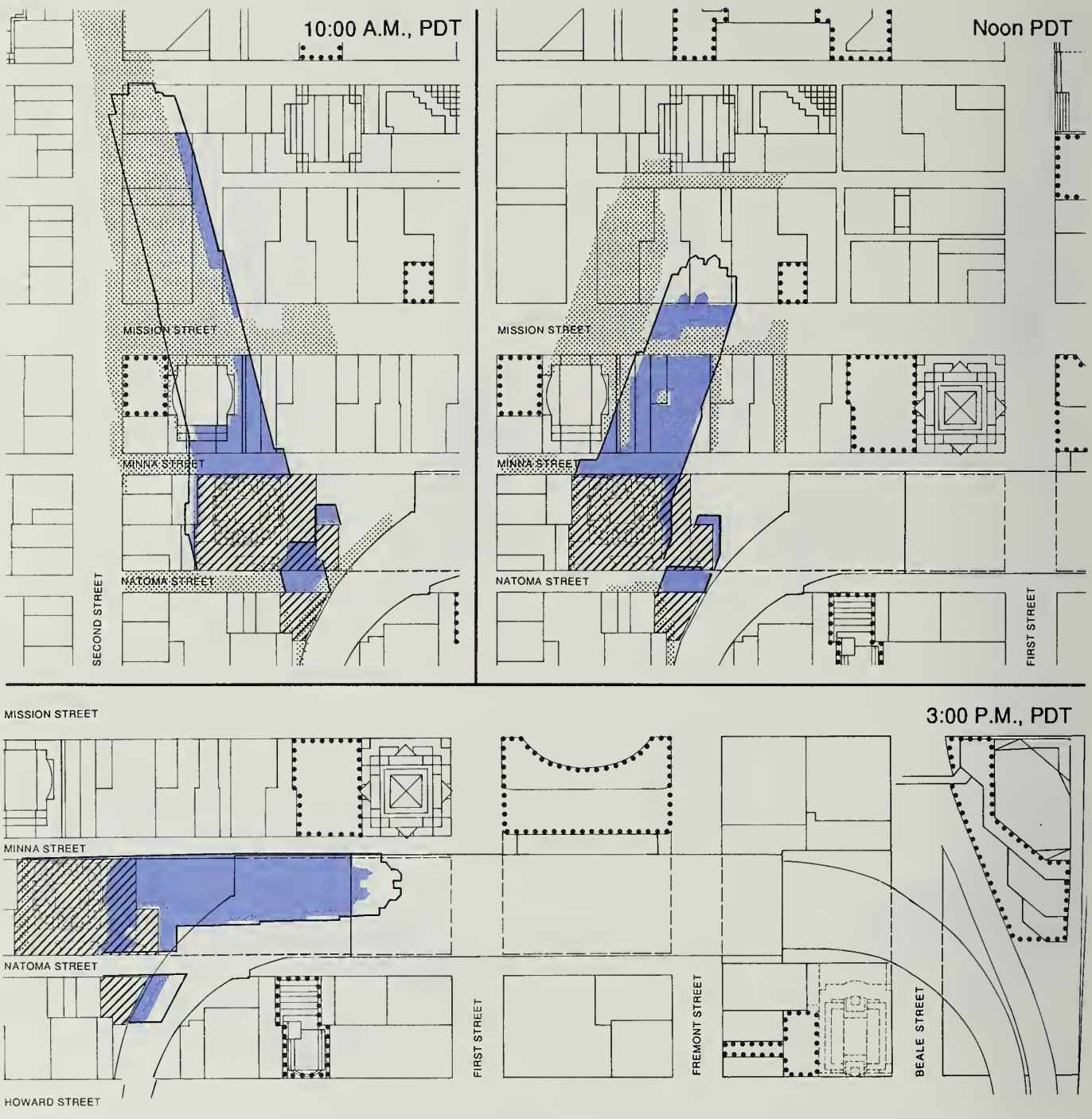
Figure 28
Project Shadow Pattern:
March 21



SOURCE: Environmental Science Associates

Natoma Mews ■

Figure 29
Project Shadow Pattern:
June 21



SOURCE: Environmental Science Associates

Natoma Mews ■

Figure 30
Project Shadow Pattern:
September 21

Conditions from June 21st through December 21st closely mirror the conditions from December 21st through June 21st (using solar time). The analysis includes shadows cast on streets, sidewalks, pedestrian areas, and open space in the area potentially affected by the proposed project. A shadow outline of the project, as though cast on the ground without intervening buildings, is shown to illustrate the scale of the project in relation to the structures that would surround it.

December 21 (PST)

At 10:00 a.m. Pacific Standard Time (PST) on December 21st (see Figure 27, p. 103) the office project would add new shadow to Natoma Street east of Second Street for about 70 linear ft. directly adjacent to the site (including the sidewalks), to Minna Street for about 170 ft. east of Second Street directly facing the site (including the sidewalks), and to about 50 linear ft. of sidewalk on the north side of Mission Street starting 60 ft. east of Anthony Street.

At noon the project would add new shadow to about 70 ft. of Natoma Street adjacent to the site east of Second Street (including the sidewalks), to Minna Street east of Second Street for about 190 ft. directly facing the site (including the sidewalks), to 80 ft. of the center and north side of Mission Street east of Anthony Street directly in front of Golden Gate University (including the sidewalks), and to 50 ft. of sidewalk on the north side of Mission Street at Ecker Street. The project would add shadow to Golden Gate University's open space seating and entry area, north of Mission Street (see discussion under Open Space beginning on p. 110).

At 3:00 p.m. the project would add new shadow to Beale Street between Mission and Howard Streets for about 40 ft. starting 200 ft. south of Mission Street (including the sidewalks). The project would add shadow to open space at the Pacific Gateway Plaza off Beale Street, and would add a narrow strip of new shadow to the Transbay Transit Terminal bus ramp between First and Fremont Streets (see discussion under Open Space beginning on p. 110).

March 21 (PST)

At 10:00 a.m. PST on March 21st (see Figure 28, p. 104) the project would add new shadow to about 80 ft. of Natoma Street adjacent to the site east of Second Street (including sidewalks), to Minna Street east of Second Street for about 140 ft. directly

facing the site (including sidewalks), to about 60 ft. of the center and north side of Mission Street east of Anthony Street starting about 30 ft. from Anthony Street (including the sidewalks), and to Jessie Street near the Jessie/Anthony intersection extending 60 ft. east of Anthony Street (including the sidewalks).

At noon the project would add new shadow to about 90 ft. of Natoma Street adjacent to the site east of Second Street (including the sidewalks), to Minna Street east of Second Street for about 190 ft. along the north sidewalk of Minna Street and about 210 ft. along the south sidewalk starting 130 ft. from Second Street, and to the center section of Mission Street east of Anthony Street starting about 200 ft. from Anthony Street (including about 40 ft. of sidewalk on the north side of Mission Street).

At 3:00 p.m. the project would add new shadow to the north sidewalk of Natoma Street east of Second Street for 200 ft. directly adjacent to the site, to Natoma Street west of First Street extending 280 ft. from First Street along the southern sidewalk), and to the western side of the intersection of Natoma and First Streets.

June 21 (PST)

At 10:00 a.m. PST on June 21st (see Figure 29, p. 105) the project would add new shadow to about 90 ft. of the north sidewalk and about 70 ft. of the south sidewalk of Natoma Street adjacent to the site and east of Second Street, to about 170 ft. of the north sidewalk and about 140 ft. of the south sidewalk of Minna Street east of Second Street directly adjacent to the site, and to Mission and Second Streets on the western side of the Mission/Second Streets intersection including 40 ft. of sidewalk on the north side of Mission Street. The project would add shadow to the fourth-floor open space of the proposed 101 Second Street office building at the southeastern corner of Second and Mission Streets (see discussion under Open Space beginning on p. 110).

At noon the project would add new shadow to about 70 ft. of Natoma Street adjacent to the site (including about 120 ft. of the north sidewalk of Minna Street and about 150 ft. of the south sidewalk of Minna Street east of Second Street).

At 3:00 p.m. the project would add new shadow to the north sidewalk of Natoma Street east of Second Street for 240 ft. starting 130 ft. from Second Street (including sidewalks).

September 21 (PST)

At 10:00 a.m. PST on September 21st (see Figure 30, p. 106) the project would add new shadow to about 80 ft. of the north sidewalk of Natoma Street and about 50 ft. of the south sidewalk of Natoma Street adjacent to the site east of Second Street, to Minna Street east of Second Street for about 150 ft. directly adjacent to the site (including the sidewalks), to about 10 ft. of the center and north side of Mission Street extending from 10 ft. east of Anthony Street (including the sidewalks), and to about 100 ft. of the west sidewalk and 50 ft. of the east sidewalk) of Anthony Street, starting 40 ft. north of Mission Street.

At noon the project would add new shadow to about 70 ft. of Natoma Street adjacent to the site east of Second Street (including both sidewalks), to Minna Street east of Second Street facing the site including about 140 ft. of the north sidewalk and about 170 ft. of the south sidewalk and to 120 ft. of the north side of Mission Street and sidewalk east of Anthony Street starting 100 ft. east of Anthony Street.

At 3:00 p.m. the project would add a narrow strip of new shadow to part of the south sidewalk of Minna Street east of Second Street for about 400 ft. starting 300 ft. east of Second Street.

The Sunlight Ordinance

In June 1984, the voters of the City and County of San Francisco approved Proposition K, the Sunlight Ordinance (Section 295 of the City Planning Code) prohibiting the issuance of building permits for structures that would shade property under the jurisdiction of, or designated to be acquired by, the Recreation and Park Commission unless the City Planning Commission determines that such shade would have an insignificant adverse impact on the use of such property.

In February 1989, the City Planning and Recreation and Park Commissions adopted shadow criteria for all 15 parks within the C-3 districts. These districts have the greatest potential for new shadow on parks because of the permitted height limits. The commissions: 1) set an Absolute Cumulative Limit for new shadow for each open space; 2) (where new shadow is allowable:) projected individual building impacts and allocated a portion of the additional allowable shadow among specific projects, within

the Absolute Cumulative Limit, and 3) set forth qualitative criteria for new shadow. A shadow fan is presented to illustrate the scale of the project shadow as though cast on the ground without intervening buildings (see Figure 31, p. 112). This information provides an update on the Sunlight Ordinance.

Rincon Park

The proposed Rincon Park open space in the Rincon Point / South Beach Redevelopment Area, located along the Embarcadero between Howard and Harrison Streets, is not currently under the jurisdiction of the Recreation and Park Commission. However, if this proposed park were to be acquired or designated for acquisition by the Recreation and Park Commission, it would be subject to Proposition K protection. Based on currently available preliminary plans for Rincon Park, shadow from the proposed project would not reach the open space at any time of the year because of existing intervening buildings.

St. Mary's Square

St. Mary's Square is the closest open space subject to the Sunlight ordinance. As illustrated in Figure 31, p. 112, the shadow cast by the project residential tower would theoretically reach St. Mary's Square one hour after sunrise between December 3rd and January 8th, and would cast shadow on the square between 8:10 A.M. and 8:20 A.M., if project shadows were cast on the ground without intervening buildings. However, the project would not add new shadow to St. Mary's Square, because of existing intervening buildings.

Union Square

Shadows cast by the residential tower would approach close to the edge of Union Square, but would not enter the square (see Figure 31 on p. 112).

Open Space

Shadow studies were prepared to evaluate project-generated shadows on existing, approved or proposed open space areas in the project vicinity. Open spaces potentially impacted by the project are described below. Existing open spaces potentially impacted by the project are shown in Figure 32 on pp. 113 to 115. The following

existing open spaces would not be affected by shadow from the proposed project because of intervening buildings that already shadow the open spaces: Tishman Plaza, Chevron Plaza, Zellerbach Plaza, Citicorp Plaza, Wells Fargo Roof Garden, McKesson Plaza, Bechtel Plaza, 425 Market Street Plaza, 333 Bush Street Greenhouse, 222 Kearny Street roof garden, Ver Mehr Place, Annie Alley, Hotel Meridian ground-level and sun terrace open spaces, 123 Mission Street open space, Bank of America Plaza and St. Marys Square. Shadow studies show that the following open space area would be affected by the project:

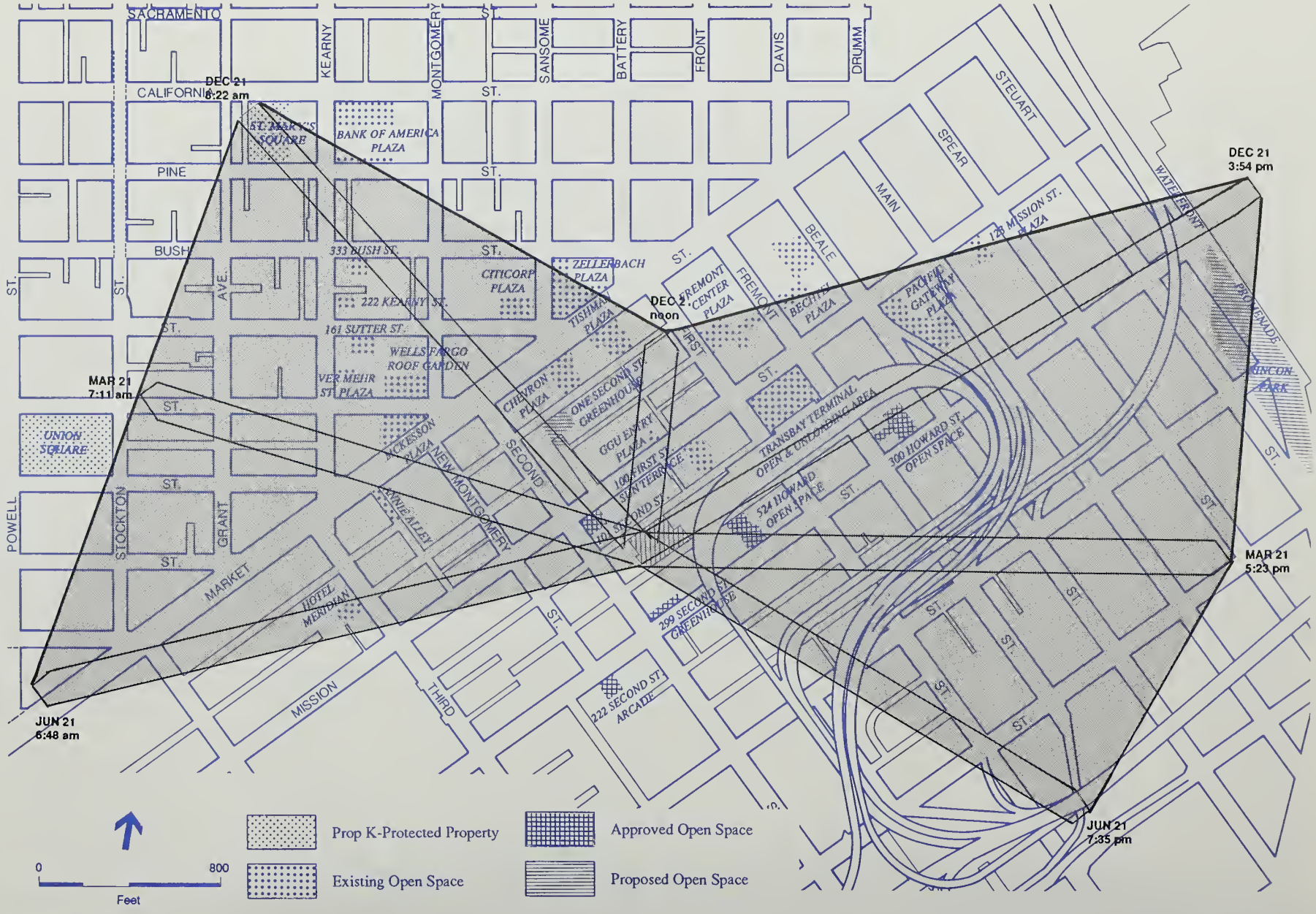
- **Transbay Transit Terminal Plaza**. New shadow would be added to the Transbay Transit Terminal Plaza during the months of October through February from about 2:00 to 3:00 p.m.. Maximum shading by the project would be in December at around 2:30 p.m., the approximate time of the worst-case impact, when approximately 15 percent of the plaza would be shaded by the project; existing buildings shade the rest of the plaza at this time.

- **100 First Street Sun Terrace**. The project would add new shadow to the 100 First Street Sun Terrace from late September through March from about 12:30 to 2:30 p.m. Maximum shading would be during the months of November through January at around 1:30 to 2:00 p.m., the approximate time of the worst-case impact, when about 50 percent of the plaza would be shaded by the project; existing buildings shade approximately 25 percent of the plaza at these times. Provision of the sun terrace was a required condition of approval for the 100 First Street office building.

- **Golden Gate University Entry**. The project would add new shadow to the steps and seating area of Golden Gate University from late September through early March between about 11:00 a.m. and 12:30 p.m. Maximum shading would be during the months of November through February at about 12:00 p.m., the approximate time of the worst-case impact, when about 40 percent of this open space would be would be shaded by the project; the University building itself shades most of the remainder of the entry (i.e., that portion not shaded by the project) at these times.

- **Fremont Center Plaza**. New shadow would be added to the Five Fremont Plaza in late November and January between about 12:30 and 1:15 p.m.. Maximum shading would be in late December at around 12:45 p.m., the approximate time of the worst-case impact, when approximately one percent of the plaza would be shaded by the project; existing buildings shade approximately 60 percent of the plaza at this time.

- **Pacific Gateway Plaza**. The project would shade the Pacific Gateway Plaza, primarily the elevated terraces, from late November through January between about 2:30 and 4:00 p.m. Maximum shading by the project would be in December between 3:00 and 3:30 p.m., the approximate time of the worst-case impact, of approximately 40 percent of the plaza; the ramps to the Transbay Transit Terminal and existing buildings shade approximately 40 percent of the plaza at this time.



SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 31
Year-Round Shadow Trace

Transbay Transit Terminal Open Area

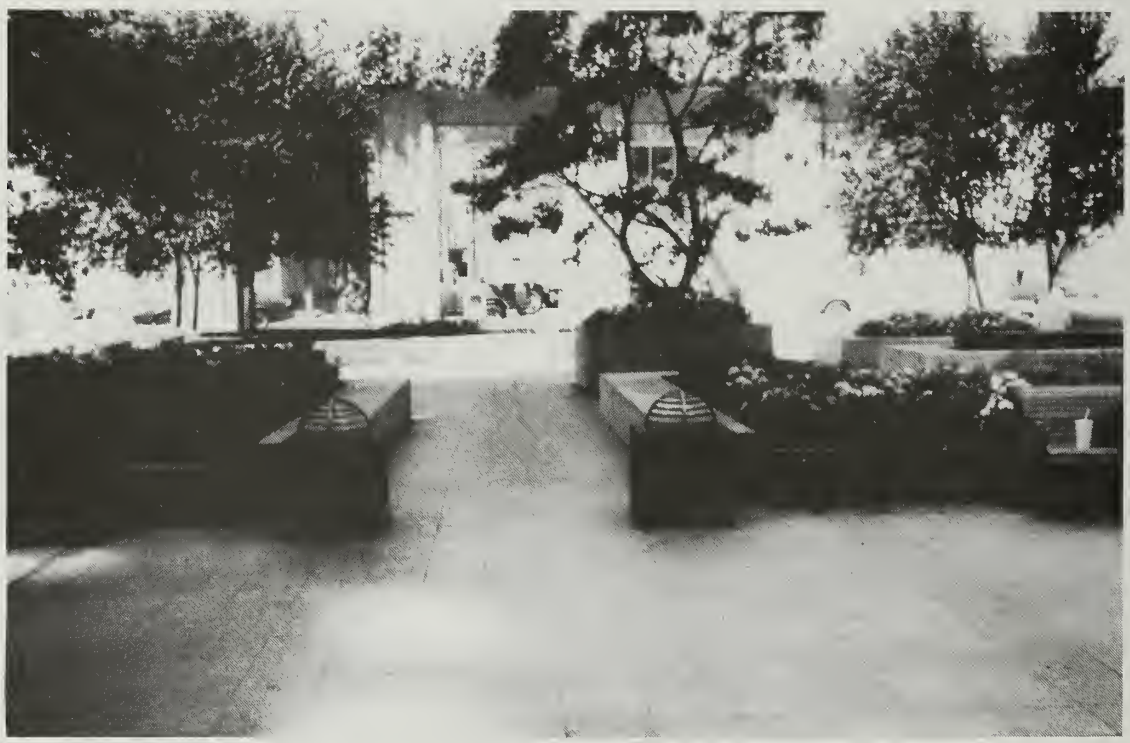
Pacific Gateway Plaza

SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 32
Open Space Areas in the Project Site Vicinity

100 First Street Sun Terrace

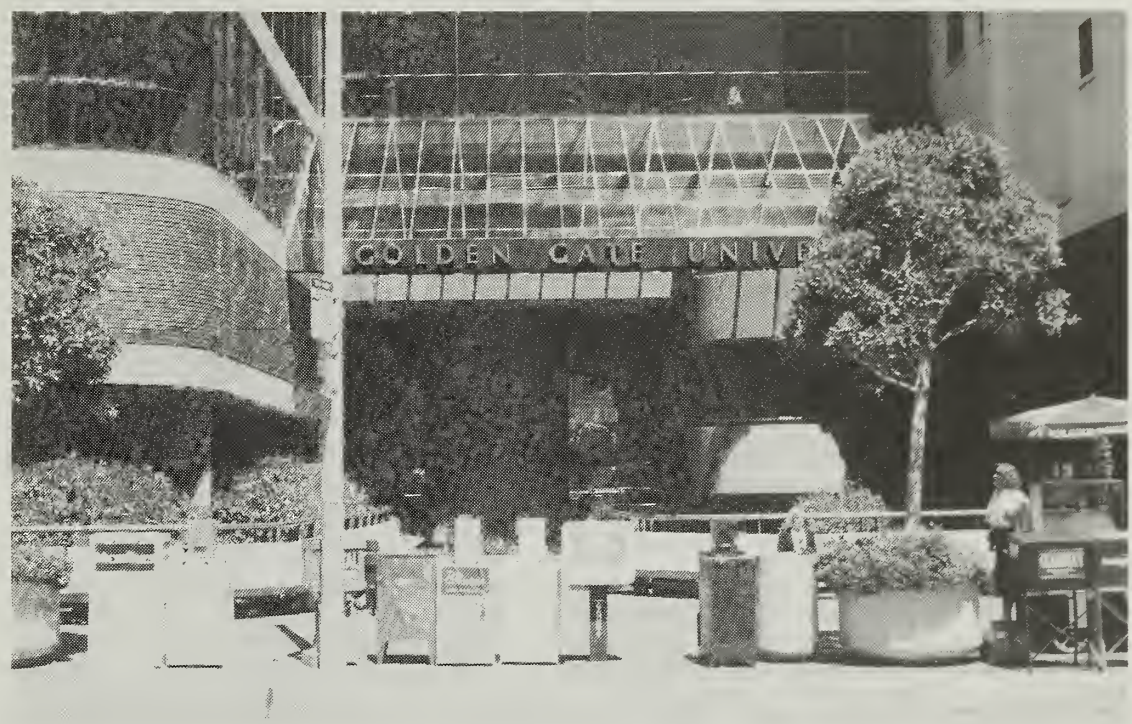


Fremont Center Plaza

Natoma Mews ■

SOURCE: Environmental Science Associates, Inc.

Figure 32 (continued)
Open Space Areas in the Project Site Vicinity



Golden Gate University Entry

Natoma Mews ■

SOURCE: Environmental Science Associates, Inc.

Figure 32 (continued)
Open Space Areas in the Project Site Vicinity

- **101 Second Street**. The approved (but not yet built) 101 Second Street building will include a glass-topped atrium built atop a three-story structure at the corner of Second and Mission Streets. Shadow from the proposed project would reach this open space during the months of February through October between sunrise and about 11:15 a.m. Maximum shading by the project would be in late April and early August at around 8:00 to 9:00 a.m., the approximate time of the worst-case impact, of approximately 20 percent of the atrium; other buildings, including the 101 Second Street building itself, will shade approximately 80 percent of the atrium at these times.

- **One Second Street Proposed Building**. The proposed One Second Street building would include a ground-level open space at the north end of Anthony Street, adjacent to the east of the proposed building. Shadow from the proposed project would reach this open space during the months of late September through late November and late January through late March from sunrise to about 10:30 a.m. Maximum shading of the open space by the project would be in late September through October and late February through early March at around 9:30 to 10:00 a.m., the approximate time of the worst-case impact, of approximately 75 percent of the ground-level open space; other buildings would shade approximately 25 percent of the ground-level open space at these times.

- **524 Howard Street**. The approved (but not yet built) 524 Howard Street building will include a two-story pedestrian arcade that will extend through the ground floor from Howard to Natoma Streets. The only effect the current project could have on this open space is to shadow the Natoma Street entrance to this pedestrian arcade. The proposed project would shadow this entrance during the months of August through November and January through April from about 2:30 to 5:30 p.m., the approximate time of the worst-case impact.

- **300 Howard Street**. The approved (but not yet built) 300 Howard Street building will include an open space east of the approved building along Howard Street and to the north of the Marine Electric Building. Shadow from the proposed project would reach this open space in October through November and late January through February between about 2:30 and 5:00 p.m. Maximum shading by the project would be in late February and late October at around 4:00 to 4:30 p.m., the approximate time of the worst-case impact, of approximately 30 percent of the open space; existing buildings will shade approximately 70 percent of this space at these times.

Sunlight Access to Public Streets

The City Planning Code (Section 146 (a)) includes sun access criteria to allow direct sunlight to reach sidewalk areas of designated streets during critical hours of the day. In the case of sidewalks, the critical hours are considered to be the hours around noon.

City Planning Code Section 146(a) specifies Second Street in the vicinity of the project site as a street on which existing sunlight reaching public sidewalks are to be preserved. Second Street has sunlight protection designated for property that abuts

the west side of Second Street. The project would be located east of Second Street and would cast new shadows on the east side of Second Street infrequently because of the shadow already cast by other buildings: On December 21st, March 21st and September 21st, project shadows would not reach Second Street after 10:00 a.m.. On June 21st at 10:00 a.m., the project would add new shadows to the western side of the Mission/Second Streets intersection, from about 30 ft. south of Mission Street to the northern side of the intersection, including sidewalk on Mission Street and sidewalk at the northwest corner of Mission and Second Streets.

Wind/1/

The City Planning Code Section 148, Reduction of Ground-Level Wind Currents in C-3 Districts, requires buildings to be shaped so as not to cause ground-level wind currents to exceed, more than ten percent of the time, 11 mph in substantial pedestrian use areas, and seven mph in public seating areas. Similarly, the Code requires that buildings not cause equivalent wind speeds to reach or exceed the hazard level of 26 mph for a single hour of the year. The seven mph and 11 mph comfort criteria are based on wind speeds that are measured for one minute and averaged. In contrast, the 26 mph hazard criterion is based on wind speeds that are measured for one hour and averaged; this is equivalent to a one minute average of 36 mph.

Prevailing winds in San Francisco are from the northwest, west-northwest, west, and west-southwest. Using a wind tunnel and a scale model of the downtown San Francisco area surrounding the project site, wind speed measurements were made at 22 surface locations near the project site. The wind-tunnel analysis included six configurations: the existing setting; the existing setting plus the project; the project in a future scenario (project with approved and/or under construction projects, and the proposed Yerba Buena Redevelopment Area project: the San Francisco Museum of Modern Art; and E-1 and E-2 building projects along the east side of Third Street in the site vicinity); and existing setting plus Alternative B, Alternative C, and Alternative D (as described in Chapter VIII, pp. 180 to 192) representing an 18:1 FAR alternative, a 9:1 FAR alternative, and an office (15.6 FAR) alternative, respectively. The study included separate tests for all of San Francisco's four major prevailing wind directions: northwest, west-northwest, west, and west-southwest. Existing conditions included approved and under-construction projects in the vicinity.

Wind test data were combined with wind records to predict the wind speed that would be exceeded ten percent of the time, and one hour per year, at each of the 22 locations tested. The predicted winds were then compared to the comfort and hazard criteria of the San Francisco Planning Code, established in the Downtown Plan. (See Appendix B, pp. A.31 to A.37 for a summary of the full wind analysis.) Throughout the following discussion, the wind speeds reported refer to the equivalent wind speeds that would be exceeded ten percent of the time, or one hour per year when referring to the hazard criterion./2/

The locations of the measurement points and the results of the wind-tunnel study for compliance with the comfort criteria are summarized in Appendix B, Figure B-1, pp. A.35. The pedestrian comfort criterion speed of 11 mph applies at 20 test locations, while the seating criterion of seven mph applies at two test locations (points 11 and 14) which are in an area indicated in preliminary site plans as intended for outdoor seating and/or open restaurant use.

Existing Conditions

Wind speeds in the existing setting range from four to 11 mph at the 22 locations tested. The comfort criterion for pedestrians is currently met at all test locations. The seven mph seating criterion is violated, however, at the two locations for which it applies. The hazard criterion is not violated at any test location in the existing setting.

Project

Wind speeds in the existing setting plus the project would range from four to 11 mph at the 22 locations tested. The project would cause winds to decrease at 12 of the 22 locations, be unchanged at four locations, and increase at six locations tested. The comfort criterion for pedestrians would be met at all test locations, while the seven mph seating criterion would be met at 12 locations. Wind speeds on the mezzanine area are estimated to be 11 mph or less, thus meeting the pedestrian comfort criterion. The comfort criterion for outdoor seating would be met at both locations for which it applies. The hazard criterion would not be violated at any test location with the project in place.

NOTES - Shadow and Wind

/1/ This section is based on a study entitled, "Wind-Tunnel Test of the Natoma Mews Project," prepared by Bruce R. White, Ph.D., for Environmental Science Associates, Inc. A summary of the Wind Study Methodology is included in Appendix B, pp. A.31 to A.37; the complete report is on file and available for review at the Department of Planning, Office of Environmental Review, 450 McAllister Street, San Francisco, CA.

/2/ Equivalent wind speed is an hourly wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.

D. CULTURAL RESOURCES

Two archaeological resources reports were prepared for the project site and vicinity by Allen G. Patron, Ph.D., Archeo-Tec, consulting archaeologists. These reports are on file at the Department of City Planning, Office of Environmental Review./1,2/

The proposed project would include excavation to a depth of about 36 ft. below grade. Excavation would disturb soils never before exposed and soils disturbed when the site was graded in the 1850's through 1860's. Based on the findings of archival research, there is a possibility that archaeological remains from the Prehistoric Period (ca. 6000 B.C. - A.D. 1775) may exist, or may once have existed, within the confines of the project site. The reports suggest that there is little likelihood of encountering archaeological resources from the Spanish and Mexican periods (1776-1845).

Because the grading of the site during the mid-1850's and early 1860's was accomplished by landfilling, rather that extensive cutting, there is a possibility that any cultural resources that once existed within the project site still lie buried beneath the present ground surface. During the prehistoric period, the project area and its surroundings were a generally favorable habitat for Native Americans. Various prehistoric sites have been discovered in the South of Market area, in the immediate vicinity of the project site, and there is possibility that both early and later Gold Rush, as well as Late 19th Century cultural resources may exist within the project site./1,2/ (See Chapter VI., Mitigation Measures, pp. 170 to 176).

NOTES - Cultural Resources

/1/ An archaeological resources report titled *Archival Cultural Resources Evaluation of the Proposed Natoma Mews Project, San Francisco, California* was prepared for the proposed site by Allen G. Pastron, Ph.D., Archeo-Tec, June 1990, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco.

/2/ An archaeological resources report titled *Archival Cultural Resources Evaluation of Assessor's Block 3721, Lot 31, a Portion of the Proposed Natoma Mews Project, San Francisco, California* was prepared for the proposed site by Allen G. Pastron, Ph.D., Archeo-Tec, December 1990, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco.

E. HAZARDOUS MATERIALS

The project site vicinity has a history of mixed residential and industrial uses. Three potential sources of contamination at the project site have been identified: (1) possible residual soil contamination from past activities on the site, (2) contamination potentially originating from similar activities adjacent to the site, and (3) possible contaminated fill./1/

Sampling and testing soil done during the environmental site assessment determined that portions of the soil at the site are contaminated with lead and petroleum hydrocarbons to a degree that would classify the soils as hazardous wastes upon excavation.

Hazardous materials-related impacts of development at a paved urban site of the type seen at Natoma and Minna Streets are typically related almost entirely to excavation and treatment and/or disposal of contaminated soils or groundwater. In general, earthmoving or dewatering in contaminated areas, if managed improperly, could directly expose workers, the public, or the environment to soils, soil gases, or groundwater contaminated with hazardous materials or wastes. Migration of gases and/or dust during construction activities could also affect the nearby public and the environment. Depending on a specific site being developed or even a specific location within a project site, chemical contaminants encountered could vary.

Activities that could lead to discovery and exposure of contaminated soils or groundwater include site investigation, site remediation, excavation, dewatering, and underground storage tank (UST) removal if a presently unknown tank were later

found to exist. Each of these activities could involve exposure of workers, the public and/or the environment to contaminated soils, groundwater, soil gases or building materials, as summarized briefly in Table 4 on page 122.

SPECIFIC PROJECT IMPACTS

Collection and analysis of samples have determined that contaminated soil is present in portions of the project site. There is no evidence that groundwater has been contaminated because no shallow groundwater was encountered during test borings. However, groundwater testing would be required as part of the dewatering discharge permit; test results would be provided to the San Francisco Department of Public Works. In addition, although there is no documentation that a UST exists at the property, test results suggest the possibility of a former fuel leak and raise the possibility that leaking or intact USTs could be encountered at the project site during excavation. Site remediation would be carried out as part of the project.

Health and Safety

The following hazardous material descriptions are intended to provide basic information about toxicological characterization of contaminants of concern; as to the actual risk posed by the presence of such materials at the project site, only an appropriate risk assessment could determine the actual risk, if any, posed.

1. Lead. Lead, a heavy metal, is a widespread environmental contaminant having toxic properties. Routes of exposure include inhalation and ingestion of lead-contaminated particulates or dust, and skin and eye contact. Symptoms of lead poisoning include fatigue, sleep disturbance, headache, muscle aches, digestive upset, abdominal pain, and loss of appetite. Lead poisoning is chronic and becomes more severe as lead builds up in body tissues. Long-term effects include anemia, loss of strength, kidney damage, and serious disorders of the central nervous system. Severe cases of chronic lead poisoning can result in delirium, coma, and death. Some lead compounds are carcinogens./2/ California regulations consider soil with a concentration of 1,000 mg/kg of lead to be a hazardous waste./3/ The highest concentration measured in soils at the site was 1,100 mg/kg. Lead is found in automobile batteries and was formerly widely used as a component of paints and gasoline; the lead levels seen in soils at the project site could have come from any number of sources. The highest concentrations of lead at the site were found in the vicinity of the historic battery repair operation.

TABLE 4: GENERIC HAZARDOUS MATERIALS - RELATED IMPACTS OF PROJECT ACTIVITIES

Project Activity	Potentially Contaminated Media / Structures	Potential Impacts
Site investigation	Soil, groundwater	Health of workers and/or public
Excavation and site preparation	Soil gases, soil, groundwater	Health of workers, public and/or environment
Dewatering	Groundwater	Health of workers, public, and/or environment
Possible underground storage tank closure	Tank, vapor, soil	Health and safety of workers and/or public
Site remediation	Soil gases, soil, groundwater	Health of workers, public and/or environment

SOURCE: Environmental Science Associates, Inc.

2. Petroleum hydrocarbons. Darkly stained soil and a petroleum odor was noted in one borehole. The soil sample tested positive for diesel fuel. Residual diesel fuel is of comparatively low toxicity to humans but its potential to degrade groundwater makes it a concern. Diesel fuel is flammable and would pose a potential fire hazard if present in storage containers. Diesel fuel vapors can irritate the eyes and respiratory system. Cleanup criteria are site specific and variable, but the San Francisco Department of Public Health and the Regional Water Quality Control Board generally require cleanup of petroleum hydrocarbons found at concentrations above 100 mg/kg for this type of site./4/ The contaminated sample at the site had 6,700 mg/kg of diesel, and more than 50,000 mg/kg of total petroleum hydrocarbons./1/

Excavation, if improperly managed, could directly expose site workers, the public, or the environment to those contaminants; excavation, handling, and disposal of contaminated fill or groundwater would be activities comprising principle threats of the project to public health and safety.

In addition to the known hazards, a variety of contaminants (particularly metals) have been found in San Francisco fill. Disturbance of presently untested areas of the site could also have impacts. As the entire site is paved and covered, very few routes of exposure for potential hazards associated with fill material currently exist at the project site. Impacts could occur only when the fill is disturbed. Without excavation, no significant impacts would be anticipated. The potential impacts of excavation of contaminated fill in any amounts can be mitigated (see Chapter VI, Mitigation Measures, pp. 170 to 176).

Underground Storage Tanks

No readily available records indicate that underground storage tanks (USTs) have been used on the site. However, caution regarding USTs is warranted because the property is in the area of San Francisco that has a history of UST use and abandonment and soil samples on-site show the presence of petroleum hydrocarbons. Any of the industries known to have occupied the site could have used USTs for fuel storage.

The contents of USTs may be hazardous; a previously unknown UST, uncovered or disturbed during excavation, could threaten the health and safety of site workers. A leaking UST could pose additional threats to groundwater resources and the environment, and could also pose a possible explosion hazard as well.

If a UST were found at the property during construction activities, it would have to be closed in place or removed as part of the project. Closure of a UST in place would likely cause minimal exposure of workers and the public to potential hazards. A UST left in the ground, however, could present a long-term source of potential contamination to the environment. UST removal could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. Risks would be minimized by following required procedures for UST cleaning and removal. In San Francisco, both the Fire Department and Department of Public Health supervise UST removals to enforce enactment of appropriate safety procedures and soil sampling and testing provisions. Removal of a tank, if found, would be done under the guidance of those agencies, as required by law.

Site Remediation

For the project site, remediation would be required for the contaminated soils. Site remediation would be guided by a Site Mitigation Plan, which generally includes, at a minimum, the following: proposed methods of treating hazardous soils in a manner that would render them nonhazardous or otherwise protect public health and safety; plans for final disposal of soils, treated or otherwise; and plans for handling, testing, treating, and disposing groundwater during dewatering. The plan must also include a statement signed by the plan preparer certifying that he or she is qualified to prepare the Site Mitigation Plan and that the mitigation measures identified in the plan would protect public health and safety. The plan would be prepared and submitted to the San Francisco Department of Public Health and Regional Water Quality Control Board (RWQCB) if necessary. If further investigation (if any occurs) determined that additional areas of the site were contaminated, or if excavation or remediation plans changed at any stage of the project, a revised plan would be submitted.

Remediation of the major hazards-related impacts of project implementation would be beneficial over the long term. Remediation would eliminate the health threats posed by any hazardous wastes and would prevent workers and the public from encountering such materials in the event of any future excavation at the site. Removal of the toxic materials would also eliminate a potential local source of groundwater contamination, which would also be beneficial for the long term.

Site remediation measures, in themselves, could have impacts. During site remediation, workers, and possibly the public, could be exposed to chemical compounds in soils, soil gases, or groundwater. The public and the environment could be exposed to airborne chemical compounds migrating from a site under remediation. Accidents during transportation of contaminated soils and/or groundwater could lead to exposure of the public and the environment to the chemical compounds. Exposure to hazardous materials could cause various short-term or long-term health effects. For particular substances, such health effects are described in standard references./2/ Worker and public health and safety requirements described in Appendix C, pp. A-40 to A-41 would apply during remediation activities.

Potential impacts of remediation would be mitigated, in part, by legally required safety and hazardous waste handling and transportation precautions. For hazardous waste workers, federal Occupational Safety and Health Administration (OSHA) regulations mandate an initial 40-hour training course and subsequent annual training review. Additionally, site-specific training would be required for some workers. In responsible agency review of mitigation plans, procedures for protection of the public during remediation would be evaluated. These measures, along with application of clean-up standards, would serve to protect human health and the environment during site remediation, thus minimizing remediation impacts.

Additional site investigation could be performed as part of site remediation. Additional investigation could include collection of soil and/or groundwater samples at the site, transportation of the samples to an analytical laboratory, and analysis and reporting. At the project site, workers directly engaged in the sampling activity would face the greatest potential for exposure. The public could be exposed to contaminants if an accident during sample transportation were to occur, or if access to the project site were not controlled. Because relatively small amounts of material are collected as samples, exposure to potential hazards during site investigation would be limited, and associated impacts would be localized.

CUMULATIVE IMPACTS

If contaminated fill were to be removed from the site during project implementation, the project would contribute to cumulative impacts on the region's waste handling capacity. Treatment and disposal of hazardous wastes are issues of national importance. Federal and state legislation is attempting to address those issues. At the federal level, the RCRA Hazardous and Solid Waste Amendments of 1984 prohibit the land disposal of untreated wastes as of May, 1990 (the "land ban"). EPA currently has promulgated treatment standards for the applicable hazardous wastes. Wastes that meet the standards are not subject to the prohibition and may be land disposed. The law states that if there is insufficient treatment capacity nationwide, the ban date may be extended for up to two years. In addition, the EPA may grant a petition to allow land disposal of an untreated waste at any specific site upon demonstration that no migration of any hazardous constituents can occur from the site./5/

The California Hazardous Waste Management Act of 1986, is similar to the Federal land ban law. It specifies that after May, 1990, hazardous wastes must be treated to adopted standards for disposal within the state. California law also encourages recycling and reuse, and allows shipment out-of-state for hazardous wastes that cannot meet treatment standards./5/

On a national level, hazardous waste landfill space is very limited and will grow even more limited as landfill capacities gradually become exhausted. As of mid-1989, there were 24 hazardous waste landfills in the United States that were open to commercial hazardous waste generators. Of these, only seven are located in western states./6/ The intent of the land ban legislation is to address the fundamental error of reliance on land disposal by forcing waste generators and handlers to seek alternatives. Because hazardous waste landfill space is limited and efficient and environmentally acceptable hazardous waste treatment technologies have yet to be developed fully, handling of hazardous waste is becoming an increasingly important problem.

NOTES - Hazardous Materials Impact

/1/ Geomatrix Consultants, *Environmental Site Assessment, Minna and Natoma Streets, San Francisco, California*, Prepared for Dinkelspiel, Donovan and Reder, One Embarcadero Center, San Francisco, April 13, 1990, on file and available for public review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street, San Francisco.

/2/ Marshall Sittig, *Handbook of Toxic and Hazardous Chemicals and Carcinogens*, Second Edition, Noyes Publications, Park Ridge, New Jersey, 1985, pp. 118-119, 739-742.

/3/ California Code of Regulations, Title 22, Article 11, Section 66699, "Persistent and Bioaccumulative Toxic Substances."

/4/ For soil contaminated by petroleum products, cleanup guidelines are flexible and site specific. At the project site, the cleanup standard would probably be 100 mg/kg for hydrocarbons. Refer to the *Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure*, State of California Leaking Underground Fuel Tank Task Force, May, 1988.

/5/ California Department of Health Services, "Land Disposal Restriction Newsletter," Toxic Substances Control Division, Alternative Technology Section, January, 1988.

/6/ EI Digest, *Industrial Hazardous Waste Management*, Environmental Information, Limited, February, 1989.

F. TRANSPORTATION

CUMULATIVE CONTEXT

Introduction

The transportation sections of the Mission Bay and South of Market Area Plan EIRs address various transportation impacts in 2000 (the Mission Bay EIR also analyzes transportation impacts in 2020). The Mission Bay transportation impact analyses evaluate travel generated by Mission Bay in the context of growth in travel projected for the rest of the City and Bay Area. The South of Market analyses do the same for that area. It is growth in the City and region that would result in the greatest impact on most of the transportation systems studied.

Using slightly different analysis methodologies, the two EIRs employ the same basic screenline approach to study regional transportation impacts of San Francisco employment growth. Results differ somewhat, based on the differences in forecasting techniques, but generally by less than five to ten percent; this difference is well within the range of accuracy of ten year forecasts. Therefore, the two sets of results are compatible. This summary of cumulative transportation effects will report largely from the Mission Bay EIR, with South of Market EIR results included where there is notable relevant information.

In summary, both EIRs show that by 2000, congested highway conditions would result in a shift from autos to higher use of transit and ridesharing by travelers from the Downtown & Vicinity. The East Bay would be the most congested corridor, the Peninsula would be the least. By 2020, travel demand would exceed the capacity of regional transportation systems. To serve regional growth, expanded transit and freeway systems would be required.

The proposed Natoma Mews project is expected to be completed, occupied and the amount of net new space in the downtown attributable to the project absorbed by 2000. Therefore, the impacts of the project and its contribution to cumulative transportation impacts would occur primarily in the 1985-2000 context. The information from the Mission Bay EIR for 2020 was prepared for the purposes of analyzing full buildout impacts of Mission Bay in a proper cumulative context, and to provide a basis for comparison of the specific Mission Bay alternatives at full

buildout. This analysis necessarily is more speculative and subject to change than year 2000 forecasts and estimates. It is presented for the reader's information.

The Analysis Years

The Mission Bay EIR analysis includes studies of transportation conditions in the year 2000, and, in order to account for buildout of the Mission Bay planning area, in the year 2020. Analyses set for the 1985-2000 timeframe can rely on reasonably confident estimates of regional transportation capacity improvements as defined by the regional agencies' highway and transit planners. There are no regional transportation plans or policies for 2020. Therefore, the Mission Bay EIR uses a different approach for this longer-term analysis. For the 2020 analysis, rather than reporting the impacts of future travel on transportation systems as is the analytical approach for 2000, the estimates of 2020 travel conditions use the transportation system capacities developed for 2000 as a base and identify the types of transportation improvements likely to be necessary to serve growth in travel between 2000 and 2020.

Effects of the Loma Prieta Earthquake

While many of the downtown streets and intersections have experienced changes in traffic volumes as a result of closure of damaged freeway segments, most of them are expected to be only temporary. As freeway repairs are completed, traffic is expected to return to its pre-quake patterns. Although not all repair plans have been finalized, it has been necessary to make certain assumptions about the transportation system that would be in place by the year 2000 to provide a reasonable assessment of future conditions. The following two future scenarios were the basis for the transportation analysis:

- *Freeway Down Scenario A* - The Embarcadero Freeway (and the Washington and Clay Street ramps) are assumed to be removed and replaced with a surface roadway. This roadway would be readily accessible from intersecting streets, similar to what will occur once all freeway demolition is completed, and all roadway obstructions removed. Given this level of access, this surface roadway scenario would provide substantially less travel capacity than that of the elevated freeway. The Mission / Main and Mission / Beale Street ramps, or a comparable facility, may or may not be restored at its pre-earthquake location. The section of I-280 between the U.S. 101 interchange and Army Street are assumed to be repaired or replaced with facilities of comparable capacity. U.S. 101 ramps at Turk Street and Golden Gate Avenue are assumed to be demolished. While no definitive replacement facility, if any, has been selected, the effects of the demolition are expected to be limited to some alteration of local traffic patterns in the general vicinity of Market Street, South Van Ness Avenue and the Civic Center.

The primary effect of this scenario would be that traffic patterns on San Francisco's local street system that served the Embarcadero Freeway operate and would operate differently in the future than before the earthquake; cumulative travel impacts as they would affect the regional highway screenlines reported in the Mission Bay and South of Market EIR analyses may be the same or possibly lower to the extent access to freeway screenlines is delayed by longer travel times associated with surface street travel. Therefore, the "Regional Travel" discussion below regarding impacts on highways would still be applicable, if not an overstatement of cumulative impacts on the regional highway system serving San Francisco./1/

- *Freeway Down Scenario B* - Limited Access. This scenario also assumes demolition of the Embarcadero Freeway and the Washington and Clay Street ramps. This scenario is reflective of the type of travel thoroughfare forwarded for further study by Mayor Agnos. This replacement roadway may or may not include subterranean segments, but would have more limited access (i.e. fewer access points to The Embarcadero) than the Freeway Down Scenario A surface roadway would have a higher travel capacity (because there would be fewer access points to impede through traffic) than the Freeway Down Scenario A; capacity of this limited access scenario, however, may still be somewhat lower than that formerly provided by the elevated Embarcadero Freeway. The Mission / Main and Mission / Beale Street ramps, or a comparable facility, may or may not be restored at its pre-earthquake location. The section of I-280 between the U.S. 101 interchange and Army Street are assumed to be repaired or replaced with facilities of comparable capacity. U.S. 101 ramps at Turk Street and Golden Gate Avenue are assumed to be demolished. While no definitive replacement facility, if any, has been selected, the effects of the demolition are expected to be limited to some alteration of local traffic patterns in the general vicinity of Market Street, South Van Ness Avenue and the Civic Center.

  Because it is assumed the travel capacity of this replacement scenario would approach that formerly provided by the Embarcadero Freeway, future travel conditions at the highway and transit screenline reported in the Mission Bay and South of Market EIR analyses would continue to be applicable for describing cumulative impacts.

Regional Travel

Regional travel was analyzed for each of the three major approaches to San Francisco: the North Bay via the Golden Gate Bridge; the East Bay via the San Francisco-Oakland Bay Bridge; and the Peninsula via the U.S. 101 and I-280 freeways.

The regional travel forecasts assume that where severe congestion is projected for the highway system and where parallel transit and ridesharing systems are available, travelers would choose to shift from their autos to fill the capacity available in transit and ridesharing systems. Those shifts are assumed to be made by travelers from the Downtown & Vicinity only, because they would have more transit and ridesharing options than travelers from other parts of the City or region. The shift to transit and

ridesharing would be greatest for travel to the East Bay, somewhat less to the North Bay, and none would be expected for travelers to the Peninsula by 2000. (Mission Bay EIR, Vol. II, p. VI.E.76-79; South of Market Plan EIR, p. 109-112, C-38-40).

Growth in the entire Downtown & Vicinity, including the South of Market and Mission Bay, and the rest of the region would be the primary source of travelers trying to cross the Golden Gate and Bay Bridges, and to use the U.S. 101 and I-280 freeways at peak hours. (Mission Bay EIR, Vol. II, pp. VI.E.71-83; South of Market EIR, pp. C-46-47.)

North Bay Corridor

The Mission Bay and South of Market EIRs found that the Golden Gate Bridge and its approaches operated with moderate congestion (driving speeds of about 35 to 45 mph) in peak hours in 1985. By 2000, heavy congestion on the bridge (a driving speed of about 30 mph) would last about two hours during the p.m. commute period if additional transit capacity between downtown and the North Bay were provided, and a substantial shift from autos to transit and ridesharing were made by travelers from the Downtown & Vicinity. If no shift from 1985 transit use levels were to occur, the period of heavy congestion on the Bridge would last for about four hours in 2000.

Golden Gate Transit indicates that it would be able to increase its bus and ferry capacity between downtown and the North Bay by 2000 in response to the demand generated. Golden Gate Bus ridership would almost double, with projected Levels of Service (LOS) D during the p.m. peak hour and LOS C during the p.m. peak period. Golden Gate ferry ridership would grow by about 60 percent from 1985 to 2000 and operate at LOS B during the p.m. peak hour and period. Ridesharing is projected to increase by 7 to 15 percent between 1985 and 2000 in the North Bay.

By the year 2020, heavy congestion on the Golden Gate Bridge could last about four hours, assuming the levels of transit and ridesharing used in 2000, if there were no additional transportation improvements between 2000 and 2020. The Mission Bay EIR indicates that, by that time, the need to consider major new transportation infrastructure and transit systems will have become apparent. The Mission Bay EIR provides examples to illustrate the magnitude of improvements that could be necessary; those mitigation measures therefore are not prescriptive, but indicative

of the level of investment required to respond to future travel demand, which would require in-depth review and analysis in the next phase of regional transportation planning. Those mitigation measures include adding a second deck to the Golden Gate Bridge to provide transbay capacity for new bus and carpool lanes, or a light-rail line, either of which would extend between downtown San Francisco and Sonoma County. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 39, 41, 71-92, 94-125, 129-134, 214-215, and 225-226; South of Market Plan EIR pp. 98-105, and 111-124.)

East Bay Corridor

There currently is virtually no room for additional vehicle traffic on the eastbound Bay Bridge approaches between 4:00 p.m. and 6:00 p.m. While the growth in travel demand on the Bay Bridge from the Downtown & Vicinity could be served by shifting those commuters from autos to transit and increased ridesharing, trips to or from other areas of the region generally are not well served by transit and would continue to be made primarily in private vehicles.

Even with the substantial shift to transit and ridesharing assumed in the analysis for travelers from the Downtown & Vicinity, the Bay Bridge would operate at capacity for about 4.5 hours in 2000, resulting in severe congestion on the San Francisco approaches to the bridge, travel speeds of less than 30 miles per hour, and heavy congestion on the bridge itself every weekday afternoon. Were the shift to transit and ridesharing from 1985 levels not to occur, the period of severe congestion in 2000 would extend for more than 5.5 hours.

By 2000, the numbers and proportion of commuters from the Downtown & Vicinity on BART during the p.m. peak period would be substantially higher. The number of trips on AC Transit would increase by about 65 percent based on the service available and the need to accommodate some riders that would otherwise use BART if ridership conditions were less crowded by 2000.

The ratio of passengers to seats on BART would increase from 1.30 in 1985 to 1.63 in 2000 (LOS F). AC Transit ridership would increase from 0.85 passengers per seat in 1985 to 1.30 in 2000 (LOS E). The capacity of BART is based on the maximum capacity of BART's computer system to track trains. The crowding projected for BART could not be fully mitigated during the peak period because of the system's technical operating limits.

An increase of seven percent in ridesharing from the Downtown & Vicinity across the Bay Bridge is projected for 2000. Even with substantial shifts to transit and ridesharing by commuters from the Downtown & Vicinity, by 2020 severe congestion on the Bay Bridge and its approaches would last for more than five hours. The number of regional vehicle trips which could not be served by the Bay Bridge during the p.m. peak period (4:00-6:00 p.m.) would grow from about 3,100 vehicles in 2000 to about 5,800 in 2020.

Mitigating those levels of congestion would require consideration of major changes to the regional transbay transportation system connecting the West Bay and East Bay. Virtually all of the concepts would require the City to work with MTC, Caltrans, and local government agencies to undertake the regional planning needed to expand transbay transportation capacity. (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 37-41, 71-92, 94-124, 126-127, 129-133, 215-216, and 226-230; South of Market EIR pp. 98-105, and 111-124.)

Peninsula Corridor

Between 1985 and 2000, traffic would increase on U.S. 101 and Interstate 280, the freeways serving the Peninsula. However, there would be less congestion on those routes at the San Mateo County Line than on the Golden Gate and Bay Bridges. Both U.S. 101 and I-280 were only moderately congested at the San Mateo County line in 1985. In or near San Francisco, the capacity of local streets, U.S. 101, and I-280 would be sufficient to handle future travel demand; the switch from highway to transit modes by Downtown & Vicinity commuters assumed for the Golden Gate and Bay Bridges would not be required for the routes serving the Peninsula. The transit analysis for 2000 and 2020 in this regional corridor therefore uses the same amount of transit capacity as in 1985.

U.S. 101 at the San Mateo County line would operate at capacity for about three hours in 2000, with heavy congestion and speeds of 30 miles per hour occurring during that afternoon peak period. By 2020, heavy congestion on U.S. 101 would last for over three afternoon hours. I-280 would operate with only moderate congestion at the county line in 2000 and 2020 with speeds averaging 35 to 45 miles per hour throughout the peak period. The congestion projected in 2020 would be reduced if commuters from the Downtown & Vicinity chose to increase their use of transit or ridesharing above the 1985 levels.

Transit ridership to the Peninsula would grow, although not to the extent that transit capacity would have to be increased above the 1985 levels. In 2000, the level of service on transit would remain high during the p.m. peak period (LOS B or C for all carriers), as there would be no system where ridership would be greater than available seats. Use of BART and SamTrans would grow by about 40 percent while CalTrain ridership would grow by just five percent (assuming the CalTrain station remains at Fourth and Townsend Streets). In 2020, CalTrain, BART and SamTrans would carry even larger loads, but would continue to operate below capacity (LOS B or C). (Mission Bay EIR, Vol. II, pp. VI.E.31-34, 37-38, 42-43, 61-62, 71-92, 94-124, 127-133, 216-217, and 230-231; South of Market EIR pp. 98-105, and 111-124).

Regional Highway Constraint Points

As a result of growth in regional travel demand, the following freeway segments lying beyond the screenlines in the transportation analysis could constrain San Francisco travel: the I-80/580/I-880 interchange in Oakland; the Caldecott Tunnel on State Route 24; I-80 in Alameda and Contra Costa Counties, U.S. 101 in Marin County, and U.S. 101 south of I-380 in San Mateo. (Mission Bay EIR, Vol. II, pp. VI.E.133-140.)

Local Transit and Streets

MUNI

To analyze cumulative impacts on MUNI, individual MUNI routes were grouped on the basis of the location of their alignments and stops into the "Northeast," "Northwest," "Southwest," and "Southeast" areas of San Francisco, referred to as "screenlines." By 2000, ridership would generally be accommodated on the MUNI screenlines. Slight overcrowding (LOS E) would occur on the Northwest screenline during the p.m. peak hour, and on the Northeast screenline during the p.m. peak period. However, by 2020, all but the Southwest screenline would be operating beyond MUNI's load standard (an overall average of 1.25 passengers per seat). Additional service required could include new light rail service to the Geary Boulevard corridor to the northwest, and to the Bayshore corridor in the southeast area of the City. (Mission Bay EIR, Vol. II, pp. VI.E.34-35, 93-99, 103-104, 114-124, 129-133, 217, and 231; South of Market Plan EIR, pp. 98-102, 112-117, C-19-21, and C-37.)

Local Streets

The Mission Bay and South of Market EIRs assumed the transportation network that existed before the Loma Prieta earthquake to be in place in the future. The following discussion is based on that assumption, modified to account for the fact that the Embarcadero Freeway has been demolished.

Severe congestion would continue to occur in both 2000 and 2020 on several of the James Lick (I-80) freeway approaches in the South of Market Area near Mission Bay. Those streets and freeway ramps serve traffic destined for the Bay Bridge and Peninsula. Several of those streets are heavily congested now. The number of severely congested I-80 approach intersections would increase by 2000 and increase again by 2020, and the congestion would be worse than was projected by the Mission Bay and South of Market EIRs, because the roadway that eventually replaces the Embarcadero Freeway would likely have less travel capacity than did the elevated freeway.

The First / Harrison Streets, Fifth / Bryant Streets, and Sixth / Brannan Streets intersections presently operate at LOS F and would continue to do so in the future. Other intersections at or near freeway ramps, such as Fourth and Harrison would deteriorate from LOS B to LOS E or F in the future. Intersections near freeway ramps are often affected by freeway access queues, as cars waiting to enter the freeway back up to or through these intersections. This affects local traffic attempting to use streets in these areas. Some traffic will shift and use less congested routes in the future as this problem increases. Continued enforcement of the ordinance passed in 1987 prohibiting blocking an intersection should help to limit this problem. By 2000, certain improvements to the local street network are planned to be in place, which would facilitate traffic circulation and access to I-280 by travelers from the Downtown & Vicinity. As a result of the I-280 Transfer Concept Program and Mission Bay Plan, King Street would be improved to function as a major roadway, with new on- and off-ramps to I-280. With cumulative development, the new major intersections at Third / King Streets, and Fourth / King Streets are projected to operate at LOS D in year 2000, and LOS E and F in 2020, respectively. Mitigation measures to provide for more left-turn lanes and towaway lanes during commute periods would reduce congestion. (Mission Bay EIR, Vol. II, pp. VI.E., 140-148, 166-175, 200-201, and 218-219; South of Market EIR, pp. 105-106, and 124-126) The Natoma Mews

project would contribute less than one percent of the traffic at these intersections. It is expected that operating conditions on other local South of Market streets and intersections not serving freeway ramps (or near freeway-serving intersections) would continue to operate in a generally free flowing manner in the future, at least to 2000.

For the local street system to operate at the level described above, there would have to be a high level of public transit use in the Downtown & Vicinity. In 1985, about 55 percent of all afternoon peak-hour outbound trips from the Downtown & Vicinity were on public transit. That level of transit could grow to about 70 percent of all trips, based on the increased capacity of transit systems expected to be available by 2000, and the congestion levels estimated to occur in the future.

As described on pp. 69 to 70, the Embarcadero Freeway has been demolished. Given this fact, the local street system serving the Embarcadero roadway will operate differently than the manner in which it served The Embarcadero Freeway. Generally, queues and delays at intersections will be lengthened along the street corridors leading to remaining Bay Bridge ramps during the afternoon commute. Also, an increase in average delays on the Bay Bridge would be expected during the morning commute period. Any proposal for the construction of a new roadway along The Embarcadero will be subject to separate environmental review.

PROJECT IMPACTS

Travel Demand

On the basis of land use, the project would generate about 7,310 net new person trip-ends (pte) per day, with about 6,490 daily pte attributable to the residential tower site and about 820 daily pte attributable to the office/retail building./2/ The trip generation calculations include travel to and from the project site by residents, visitors and employees of the project. Additionally, although expressed on a person trip-end basis, the trip generation includes all travel to and from the project in autos, service vehicles and trucks, on public transit and other modes (i.e., walking, bicycles, taxis, etc.). The daily trip rate considers only land uses on the site; first priority for parking provided on the site would be given to residents and then to other uses in the residential building. As parking demand for the proposed uses on-site is estimated to exceed parking provided, it is not expected that the parking use would be an

additional generator of trips. Projected outbound (peak commute direction) p.m. peak-period and peak-hour trips by mode expected to be generated by the project are shown in Table 5. Much of the p.m. peak period travel demand generated by the residential component of the project would be in the non-peak direction of travel (i.e., inbound), and a majority (about 70 percent) of these trips would be internal to the C-3 District. About 350 new outbound trips from the project (256 from the residential tower and 94 from the office/retail building) would occur during the p.m. peak-period, of which about 210 (162 from the residential tower and 48 from the office/retail building) would occur in the p.m. peak hour./3/ The large number of peak-period and peak-hour "walk" trips shown in the table reflect the residential component of the project in proximity to Downtown San Francisco employment.

Assignments to travel modes for the project have been calculated on the basis of two different sets of modal split assumptions. The first set of assumptions reflect average modal splits as of 1985, (except for work trips generated by the residential component) which were derived from surveys of downtown residents./4/ The 1985 modal split has been used for the purpose of identifying impacts at the single-project level (as opposed to impacts at the cumulative level). The second set of assumptions reflects modal splits for the year 2000 contained in the Mission Bay EIR, except for work trips generated by the residential component, as described above./5/ The year 2000 modal splits have been applied to the project travel for the purpose of comparing project travel with cumulative future travel demand on the transportation systems serving San Francisco. The modal splits used were derived from aggregate data for the C-3 District, the zoning district that contains the project site, and the rest of downtown San Francisco. The actual modal split for travel from the project may vary from the average. However, because the average modal split data reflect travel patterns for an area of which the project site is a part, application of the average modal split data to project travel has been assumed to be sufficiently accurate for purposes of comparison.

Transit

There are six MUNI routes with stops within one block of the project site. The Transbay Terminal is located one block east from the site; there are four additional MUNI routes that stop there, as well as AC Transit, Golden Gate Transit and SamTrans buses. MUNI Metro and BART service in the Market Street subway, via

TABLE 5: PROJECTED OUTBOUND TRAVEL DEMAND BY MODE FROM THE NATOMA MEWS PROJECT (pte)/a/

Travel Mode	P.M. Peak Period/b/ 1985/c/	2000/d/	P.M. Peak Hour /b/ 1985/c/	2000/d/
Drive Alone	37	35	23	20
Carpool	11	11	8	8
MUNI	95	94	53	53
BART	30	33	19	22
AC Transit	4	4	3	3
SamTrans	1	1	1	1
SPRR (CalTrain)	4	4	3	3
GGT Bus	4	4	3	3
Ferry	0	0	0	0
Walk	162	162	97	97
Taxi	2	2	0	0
TOTALS	350	350	210	210
(Residential Tower	(256	256)	(162	162)
(Office/Retail building)	(94	94)	(48	48)

/a/ Person trip-ends.
/b/ The peak hour occurs during the two-hour peak period of 4:00 p.m. to 6:00 p.m.
/c/ The year 1985 modal split was developed from information contained in employer / employee surveys conducted by Recht Hausrath & Associates and household surveys conducted by the Metropolitan Transportation Commission, as described in the Mission Bay EIR, Vol. III, p. XIV.E.5.
/d/ The year 2000 modal split accounts for changes in travel behavior which are assumed to occur as a result of growth in the Downtown & Vicinity, as described in Mission Bay EIR, Vol. II. pp. VI.E.71-78.

SOURCE: Environmental Science Associates, Inc.

the Montgomery station, and MUNI surface routes on Market Street are one and one-half blocks north of the site. Figure 33 on p. 139 shows transit routes in the project area. Photographic examples of p.m. peak-hour loadings on MUNI vehicles are shown in Appendix D, Figure D-1, pp. A.46 to A.48.

During the p.m. peak hour in 1985, most of the transit agencies were found to be operating in Level of Service (LOS) D or better. The exception was BART Transbay, where conditions were found to be at LOS E. Table D-1, Appendix D, p. A.45, contains descriptions of the various LOS for transit.

In the p.m. peak hour in 2000, about 53 (0.2 percent) new MUNI trips among all four of the MUNI screenlines would be generated by the project. Addition of the project p.m. peak hour MUNI riders, which in total would not be inconsequential, would not increase the loading ratios across any of the screenlines once they dispersed among the numerous routes within those corridors. MUNI operates at a financial loss providing service in the downtown. The costs of MUNI ridership demand generated by the project would be offset by the requirement of fees collected for the project (if it is approved) pursuant to the Transit Impact Development Fee (TIDF) ordinance. Based on the current TIDF fee of $5.00 per sq. ft. of net new office space, the project would yield about $92,000. The final determination of TIDF would be made on the basis of a more detailed review of architectural plans submitted to the City.

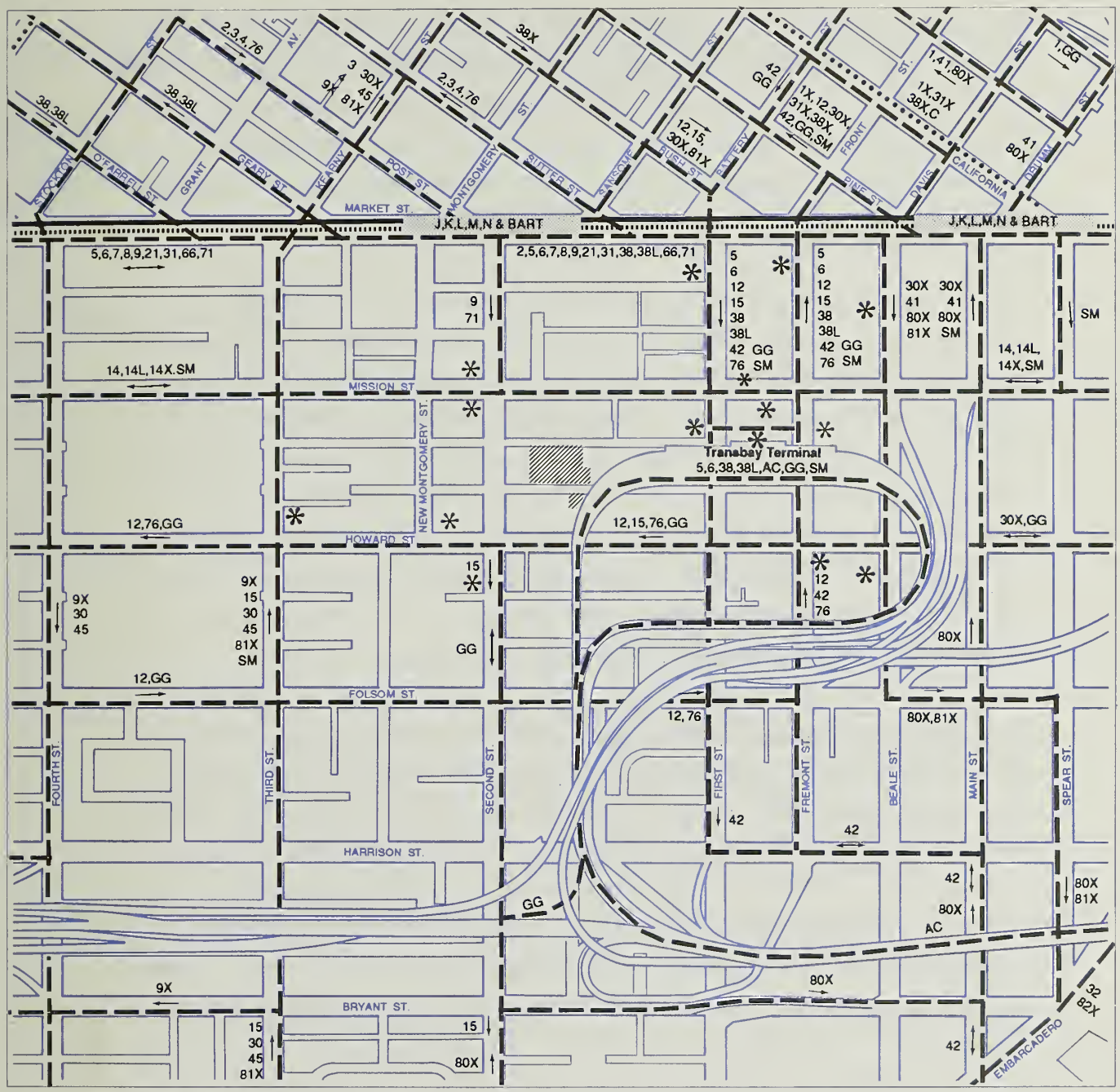
Addition of BART riders from the project to the existing BART ridership also would not increase p.m. peak hour Transbay or westbay loading ratios or change LOS. Existing peak period and peak hour transit ridership would be increased by about 0.1 percent. A ridership increase of this magnitude would not be measurable against the day-to-day fluctuations in transit ridership. Similar to MUNI, however, BART also operates at a cost deficit, which would increase with additional riders generated by the project. BART's operating deficit per passenger is likely to decline in real terms as planned service improvements become operational in the future, attracting a net increase in ridership.

As discussed on pp. 127 to 135, the project also would contribute to cumulative increases in transit ridership on other regional transit carriers besides BART serving downtown San Francisco that would result in an increase in loading ratios (and a deteriorated level of service).

Traffic

Local Intersection Traffic

As described in Chapter IV, Environmental Setting, pp. 69 to 70, the Loma Prieta earthquake damaged a number of freeway segments in San Francisco. As a result a number of ramps serving those freeway segments have been closed. Among them are the Mission / Main Street and Mission / Beale ramps, located in the project vicinity. Thus, traffic patterns around the project site have been altered due to the ramp closures.



NOTE: AX and BX routes for lines 1, 9, 31 and 38 follow the respective X routes shown on this map.

SOURCE: MUNI San Francisco Street and Transit Map, 1990;
Golden Gate Transit Bus & Ferry System Map;
AC Transit; SamTrans Bus Route Map

Natoma Mews ■

Figure 33
Transit Routes
in the Project Area

The analysis presented below addresses traffic conditions that include project impacts with the ramps remaining closed, and with the ramps re-opened or otherwise providing pre-earthquake carrying capacities. Although current planning related to the Embarcadero Freeway demolition and roadway anticipate continued use of the Main Street and Beale Street ramps, the scenario analyzing the closed ramps is included because it is unknown at this time when they will be re-opened.

Traffic data collected for this EIR in March and October 1990, at the study intersections, reflect traffic volumes and patterns without the ramps. Because of the uncertainly of when the ramps will open, the analysis presents existing and existing plus project service levels at local intersections under current road network conditions, as well as Year 2000 cumulative (including the project) service levels (see Table 6). Level of Service (LOS) descriptions are shown in Tables D-2 and D-3, Appendix D, pp. A.50 - A.51. Previous p.m. peak-hour traffic counts at First and Mission Streets (1981), Second and Mission Streets (1981), and Second and Howard Streets (1989) were used to reconstruct the equivalent 1990 turning movement volumes at the study intersections reflective of the pre-quake road network./6/

Pre-Quake Street Network (Ramps Open). Comparison of pre- and post-earthquake traffic data at the study intersections indicates that, with the Mission Street ramps closed, more vehicles use First and Second Streets to access freeway ramps to the Bay Bridge and the Peninsula than did prior to the Loma Prieta earthquake. There are fewer vehicles on Mission Street, as drivers use alternate streets to reach the freeways. Traffic operations at the study intersections would be expected to be incrementally better with the Mission Street ramps open than if they remain closed, although three of the four intersections would continue to operate at an unacceptable LOS E or F.

Project impacts at the Second Street / Natoma Street intersection were assessed in terms of delays experienced by drivers turning left from Second Street to one-way eastbound Natoma Street. Existing traffic making this movement at the unsignalized intersection in the p.m. peak hour is low (about 20 vehicles), and the level of opposing northbound traffic does not substantially delay left-turning vehicles./7/ The project would add about 20 p.m. peak-hour southbound left turns, which would not be expected to create increased delays.

TABLE 6: PROJECTED PEAK-HOUR INTERSECTION VOLUME-TO-CAPACITY RATIOS (V/C) AND LEVELS OF SERVICE (LOS)/a,b/

Intersection	Existing (1990) /c/ V/C	LOS	Existing + Project V/C	LOS	Cumulative (current road network), 2000 /d/ V/C	LOS	Cumulative (pre-quake road network), 2000 /e/ V/C	LOS
Second Street and Howard Streets	0.76	C	0.76	C	0.86	D /f/	0.85	D
First Street and Howard Streets	/g/	E/F /g/	/g/	E/F /g/	/g/	F /g/	/g/	F /g/
First Street and Mission Streets	0.88	D	0.88	D	0.99	E /f/	1.11	F /h/
Second Street and Mission Streets	0.86	D	0.86	D	0.97	E /f/	0.97	E

/a/ LOS descriptions and relationship to V/C ratios are shown in Table D-3, p. A.51 of Appendix D.

/b/ V/C ratios, and associated LOS, are computed by assigning traffic volumes on each intersection approach to available travel lanes to determine the volume of the critical movements at the intersection. The assignment process requires assumptions, based on observation and judgment, regarding patterns of lane usage by drivers at the intersection. Factors that influence these patterns include physical conditions (e.g., the number of travel lanes) and traffic regulation conditions (e.g., parking prohibition during certain hours, and diamond lanes (for buses and right turns only)).

/c/ Based on traffic counts conducted by Environmental Science Associates, Inc., on Tuesday, October 23, 1990, and by DKS Associates on Thursday, March 29, 1990.

/d/ Road network with Mission Street ramps closed.

/e/ Road network with Mission Street ramps re-opened or otherwise providing pre-earthquake carrying capacities.

/f/ The projected 13 percent increase in V/C ratio (1990-2000) is consistent with the expected 20 percent increase in traffic volumes (1985-2000) in this area south of Market Street as projected by the Department of City Planning, based on cumulative traffic analysis conducted in the Mission Bay and South of Market EIRs.

/g/ Intersection flow is obstructed by congestion and backups on First Street from Bay Bridge on-ramp at Harrison Street and a V/C ratio cannot be appropriately calculated. The LOS is due to congestion of the downstream street network, not the V/C ratio at the First Street / Howard Street intersection.

/h/ As analyzed in the South of Market Plan EIR.

SOURCE: Environmental Science Associates, Inc.

Current Street Network (Ramps Closed). The First / Howard Streets intersection currently operates at LOS E/F during the p.m. peak hour, as a result of congested traffic backing up on southbound First Street from the on-ramp to the Bay Bridge at First and Harrison Streets. Westbound through vehicles on Howard Street are not constrained by queuing, and the LOS is generally C or better. Operations at LOS F represent jammed conditions. The effect of congestion on First Street is somewhat diminished at the First Street / Mission Street intersection, and the p.m. peak-hour service level is currently at LOS D. The Second Street intersections at Howard and Mission Streets currently operate at LOS C and D, respectively. The addition of project traffic would not change the service levels. However, when also taking into account other non-project traffic at these intersections, cumulative traffic would degrade levels of service by up to two grades; at that point, three of the four intersections would operate at an unacceptable LOS E or F.

Freeway Corridor Analysis

As discussed on pp. 127 to 135, the project would contribute to increases in traffic on the major freeways serving downtown San Francisco. Because the majority of the vehicle traffic generated by the primarily residential project would be inbound to the project site in the p.m. peak period, travel demand from the project would not substantially affect the predominantly outbound traffic flow on freeways serving downtown. Traffic generated by the project itself would increase total traffic on major freeways during the p.m. peak period and the p.m. peak hour by about 0.1 percent or less. Such increases would not be measurable against the day-to-day fluctuations in traffic volumes.

Pedestrian Movements

Entrance to the residential building would be from a private pedestrian and vehicular through-street between Natoma and Minna Streets. This would provide access to open space areas (outdoor plaza) and the lobby, where elevators serving upper floors would be located. Entrances to ground-floor retail space would also be from open space areas, and from Natoma and Minna Streets. The entrance to the office building would be on Natoma Street.

Table 7 summarizes pedestrian flow conditions on eastside crosswalks at the intersections of Second and Howard Streets and Second and Mission Streets.

TABLE 7: PEAK PEDESTRIAN VOLUMES AND FLOW REGIMEN

	Total Width (feet)	Effective Width (feet)/a/	Existing p/f/m/b/	Existing Flow Regimen/c/	Existing Plus Project p/f/m	Existing Plus Project Flow Regimen	2000 p/f/m	2000 Flow Regimen	2000 Project Percent/e/
NOON PEAK /d/									
Eastside Second St.:									
crosswalk across Mission St.	14.0	14.0	1.3	Unimpeded	2.0	Unimpeded	2.5	Impeded	28%
crosswalk across Howard St.	14.0	14.0	0.7	Unimpeded	1.1	Unimpeded	1.3	Unimpeded	28%
P.M. PEAK/d/									
Eastside Second St:									
crosswalk across Mission St.	14.0	14.0	1.7	Unimpeded	2.1	Impeded	2.7	Impeded	16%
crosswalk across Howard St.	14.0	14.0	0.9	Unimpeded	1.1	Unimpeded	1.4	Unimpeded	16%

/a/ The effective width is the narrowest portion of the sidewalk and is calculated by subtracting the space taken by poles, planter boxes, people standing at windows, etc., from the total width. The effective width of crosswalks is sometimes less than the total width, if vehicles are observed to regularly encroach into the crosswalk; this pattern of encroachment was not observed for this analysis.
/b/ Pedestrians per foot of effective sidewalk width per minute.
/c/ See Table D-2 and Figure D-2, Appendix D, pp. A.50 to A.54, for descriptions of pedestrian flow regimens.
/d/ Peak 15-minute periods.
/e/ Percentage of project-generated pedestrian trips of total pedestrian volumes in 2000.

SOURCE: Environmental Science Associates, Inc., and Pushkarev and Zupan, Urban Space for Pedestrians.

Operating conditions on crosswalks have been evaluated in terms of pedestrian flow categories or regimen, which relate the density of pedestrians in a specific time period (pedestrians per foot of clear sidewalk width per minute) to the quality of pedestrian flow (the difficulty of maintaining walking paths and speeds on a sidewalk). See Appendix D, Table D-4, p. A.52, for an explanation of pedestrian flow rates and LOS. Figure D-2, p. A.50, shows photographs of sidewalk conditions for each flow regime. These crosswalks currently operate in unimpeded condition during both the noon-peak 15-minute period and the 15-minute p.m. peak period (in the project vicinity, p.m. peak period pedestrian volumes are generally heavier than in the noon peak)./8/

The project at full occupancy would generate about 290 new pedestrian trips on sidewalks and crosswalks in the vicinity of the site during the 15-minute peak-period of the noon hour, with about 255 pedestrian trips attributable to the residential tower and about 35 pedestrian trips attributable to the office/retail building, and about 200 new pedestrian trips during the p.m. 15-minute period (about 175 from the residential tower and about 25 from the office/retail building). Conditions on nearby crosswalks, following addition of the project pedestrian travel to existing volumes, would be the same as at present for the eastside crosswalk at Howard Street. Conditions for the eastside crosswalk at Mission Street would worsen from unimpeded to impeded during the p.m. peak 15-minute period; this crosswalk would not change from current condition during the noon 15-minute peak.

In the year 2000, during the noon and p.m. 15-minute peak, the crosswalk at Mission Street would worsen from unimpeded to impeded conditions, and the crosswalk at Howard Street would remain in unimpeded conditions, compared to existing conditions (see Table 7, p. 143). The project pedestrian traffic would represent about 28 percent of the pedestrian volumes on the crosswalks during noon hour and about 16 percent of the pedestrian volumes on the crosswalks during the p.m. peak 15-minute period. There would continue to be adequate crosswalk widths for pedestrians (see discussion above and Table D-4, Appendix D, p. A.52).

As described in Chapter IV, Environmental Setting, p. 72, available sidewalk widths adjacent to the site on Natoma and Minna Street are limited, with effective widths of about two to three feet. The site plans for the project show proposed sidewalk widths of about five feet on Natoma Street and about nine feet on Minna Street along the

project frontages (sidewalk widening would use about two to five ft. width from the project site at Minna Street). Existing pedestrian flows are minimal on these streets. Project-generated pedestrian flow would be expected to gravitate primarily to Second Street on Minna Street toward Mission Street and points north. The proposed sidewalk widths would result in unimpeded conditions on Minna and Natoma Street sidewalks along the project frontage. The existing sidewalk width between the project site and Second Street that would not be part of the project, however, could result in constrained conditions in those areas, particularly on Natoma Street where bicycles used by a courier service are locked to parking meters, further obstructing the sidewalk.

OFF-STREET PARKING AND LOADING REQUIREMENTS AND DEMAND

Parking

Parking demand was projected for the project on the basis of the estimated vehicle traffic generated by the project. The proposed project would create net new long-term parking demand for about 523 long-term spaces (including one carpool/vanpool space) and short-term parking demand for 13 equivalent daily spaces, for a total parking demand of 536 daily spaces, with about 522 spaces attributable to the residential tower and about 14 spaces attributable to the office/retail building. It should be noted that surveys of downtown residential buildings indicate that average auto ownership is 1.0 vehicles per residential unit./4/ The project would accommodate approximately 406 vehicles in the residential tower, with first priority for lease of parking spaces given to project residents and then to other on-site uses. No parking spaces are proposed for the office/retail site. Of the total on-site supply, 204 marked stalls (able to hold 232 vehicles) would be independently accessible and located below ground; 28 of the independently accessible stalls would be deep enough to accept two vehicles parked in tandem. The remaining 174 vehicles would be accommodated above ground and be accessible by valet parking. Parking demand calculations are presented in Appendix D, Table D-5, pp. A. 55 to A. 57.

Existing parking on the project site currently includes a total of about 150 parking spaces./9/ There are 16 existing private parking spaces, i.e., reserved for the exclusive use by employees currently working in existing adjacent uses off-site (Dahl-Beck Electric). Of the 134 parking spaces available to the general public, 100 spaces are

under monthly lease and about 75 percent of the public parking is therefore considered long-term. About 25 percent of the public parking (34 spaces) are available for short-term use, although most of these spaces are, in fact, used for long-term (all day) parking.

The proposed project would eliminate 150 existing parking spaces (134 of which are available to the general public), resulting in a total unmet demand of about 280 equivalent daily spaces [total project demand (536) plus displaced parking (150) minus proposed parking capacity (406) equals 280 spaces total unmet demand]. Occupancy in off-street public parking lots and garages within a 1/4-mile radius of the project's site may be expected to increase from the existing 88 to 93 percent as a result of the unmet parking demand generated by the project, assuming no change in travel modal splits. The unmet residential parking demand of 103 spaces (i.e., residential demand of 509 spaces minus proposed parking capacity of 406 spaces) would be accommodated in off-street public parking (likely to be garages) within the project vicinity to the extent that monthly spaces were available for lease in those facilities. A sample inquiry revealed that monthly spaces are currently available in this area./10/ Any parking provided in the project made available for public use would be subject to a rate structure (City Planning Code Section 155(g)), which encourages short-term use and discourages all day parking.

The City Planning Code requires off-street parking for residential development in the C-3-O District. Under Planning Code Section 151, one space is required for each four dwelling units in C-3 District. For the 509 residential units proposed, the basic requirement would be 127 off-street parking spaces. The City Planning Code does not require off-street parking for commercial projects in the C-3 District; therefore, the office, retail and health club uses proposed would not require off-street parking. Accessory parking may include up to 150 percent of the required number of parking spaces and up to seven percent of gross floor area of a use without an off-street parking requirement. Off-street parking area in excess of accessory parking would require Conditional Use Authorization. For the proposed residential project 191 spaces would be considered accessory, plus two additional spaces based on seven percent of the project's commercial floor area, for a total of 193 accessory spaces. Of the proposed 378 parking spaces, approximately 185 parking spaces would be in excess of parking as an accessory use and would therefore require Conditional Use Authorization.

Below-ground parking would be accessed via entry and exit ramps on the Natoma Street side of the residential tower site. Entering vehicles would turn from Second Street onto Natoma Street (one-way eastbound). Exiting vehicles would use Natoma Street to First Street or would use the private thoroughfare (one-way northbound) proposed within the project to use Minna Street in order to get to Second Street.

Above-ground valet parking would be accessed via a single-lane ramp on the Minna Street side of the residential tower site. The provision for a single-lane access is not in compliance with Department of Public Works guidelines; the project sponsor plans to apply for an exemption to this guideline. Residents leasing valet parking space would drop-off and pick-up their vehicles at an attendant kiosk located on the private thorough-driveway (one-way northbound) proposed to link Natoma and Minna Streets. The ramp and street configurations would require attendants to make multiple left turns (i.e., Minna Street to Second Street to Natoma Street to private driveway) when a residential wishes to leave the premises with his or her vehicle. This required maneuver would increase the potential conflicts with traffic on Second Street.

Loading

Based upon data published in Center City Circulation Program: Pedestrian Circulation and Goods Movement, the new buildings would generate about 21 service vehicle stops per day; 16 service vehicle stops would be generated by the residential tower on an average day, and five service vehicle stops would be generated by the office/retail building on an average day./11/ Average hourly loading space needs are given in terms of spaces per hour per 10,000 gsf of building space; average demand for the project would be about 2.3 spaces per hour and peak hourly demand would be 2.9 spaces.

Under the City Planning Code, the project would be required to provide three loading spaces to serve the 13,240 sq. ft. of retail/restaurant space (10,001-30,000 sq. ft. of gross floor area = one space) and 444,400 sq. ft. of residential space (200,001-500,000 sq. ft. of gross floor area = two spaces). The Code allows the substitution of two van spaces for each loading space, provided that at least one-half the required number of spaces are provided for trucks. One truck loading space (10 ft. by 35 ft.) with a curb cut of about 11 ft. would be located on the ground floor with access from Minna Street. This loading space would satisfy minimum dimensions required of the first

full-size space for a building by the Planning Code (Section 154(b)(a)). The ten-foot width, however, might not be sufficient to accommodate semi-trailers. A loading space 12 feet wide would better serve such vehicles. In addition, two van spaces would be provided below-ground, accessible via the ramps used for subsurface parking spaces, as well as a full-size 35-ft., curbside loading space on the proposed private driveway at Natoma Street. With the provision of the loading space on the private driveway, the project would satisfy the City Planning Code requirement for provision of on-site loading, and would meet the average demand for 2.3 loading spaces per hour and peak hourly demand for 2.9 loading spaces per hour. If loading demand by full-size trucks were to exceed two spaces, on-street double parking would occur on Natoma or Minna Street. This could adversely affect traffic flow on these streets.

Analysis of the design of the proposed Minna Street loading/service area indicates that standard single-unit trucks would be able to enter the loading area by backing in from a westbound position on Minna Street, as required by Department of Public Works standards. The width of Minna Street (20 ft.) would restrict maneuverability of typical semi-trailer moving vans; those trucks would not be able to back into the loading area and would need to use the loading space on the private driveway, or they could double park on Natoma or Minna Streets. This latter occurrence could adversely affect traffic flow on these streets. The proposed loading/service area and ramp for the valet parking levels would be opposite the ramps for on-site parking for the 101 Second Street project, currently under construction. This configuration could result in conflicts between vehicles accessing each project.

DEMOLITION, EXCAVATION, AND CONSTRUCTION TRAFFIC

During the projected 30-month construction period, transportation impacts would result from truck movements to and from the site during demolition, excavation, and construction activity. No demolition phase would be required. Shoring and underpinning for the structure would require about two months and would generate an average of six truck movements per day in or out of the project site, between 9:00 a.m. and 3:30 p.m. Construction activities (steel erection and finishing) would generate an average of four truck movements per day during the remaining 28-month period. Deliveries of materials would occur between 9:00 a.m. and 3:30 p.m.

Primary construction truck access to the site is proposed to be from Natoma Street with secondary access from Minna Street. Trucks would use the First Street on-ramp at Harrison Street to reach I-80 East and the Harrison Street on-ramp at Fourth Street to reach U.S. 101 South. During the construction period, the sidewalks fronting the project site on Natoma and Minna Streets would be closed, and pedestrians would be directed by sign to use the sidewalks (to be covered during construction) on the opposite side of Natoma and Minna Streets . Closure of the curb lanes on Natoma and Minna Streets would displace about four yellow-curb loading spaces. Lane and sidewalk closures are subject to review and approval by the Department of Parking and Traffic.

Materials storage is proposed to be on-site, and would therefore not require construction vehicle trips to and from the site on a frequent basis to deliver materials. Temporary parking demand from construction workers' vehicles, and impacts on local intersections from construction worker traffic, would occur in proportion to the number of construction workers who would use automobiles and would not create a substantial effect on traffic or parking in the area.

The impact of construction-related traffic would be a lessening of the capacities of access streets and haul routes because of the closure of curb lanes to provide temporary pedestrian walkways, and the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Lane blockage on Natoma, Minna, First and Second Streets by queued trucks, if it were to occur, would reduce the capacity of these streets. The following MUNI lines could be affected: 12-Folsom, 15-Third and 42-Downtown Loop. Blockage during times of peak traffic flow would have greater potential to create conflicts than during non-peak hours because of the greater numbers of vehicles on the streets during the peak hour that would have to maneuver around the queued trucks. Any truck traffic from 7:00 a.m. to 9:00 a.m. or from 4:00 p.m. to 6:00 p.m. would coincide with peak-hour traffic, and would serve to worsen service levels. As noted above, truck traffic would be restricted to the hours of 9:00 a.m. to 3:30 p.m. which would avoid such peak-period effects.

Additional developments in the immediate project vicinity are in different stages of environmental review, project approval or construction: One Second Street is currently being reviewed, and 101 Second Street, 222 Second Street, 299 Second Street and 524 Howard Street are approved but not under construction.

Some phases of other developments' construction could overlap with construction of the project. The 101 Second Street development is closest to the project site. In the event of combined construction periods of the proposed project and one or more of these other projects, construction truck traffic would be expected to increase further, and traffic congestion and transit delays could worsen beyond the conditions described above. Should one project be completed and a second begin soon after, construction truck traffic impacts would be prolonged, but not likely be further degraded.

NOTES - Transportation

/1/ This general information is based on impact analysis carried out in the *I-280 Transfer Concept EIR*, 1985, which examined different surface route alternatives along The Embarcadero right-of-way Any new roadway designs proposed for The Embarcadero would be subject to additional separate environmental review.

/2/ San Francisco Department of City Planning, *Transportation Guidelines for Environmental Impact Review: Transportation Impacts*, September 1983. This document describes the procedure used to calculate travel demand from the project. Trip generation rates of 7.5 person trip-ends (pte) per residential dwelling unit, 18.1 pte per 1,000 gross sq. ft. of office space and 600 pte per 1,000 gross sq. ft. of composite retail/restaurant space were used to generate travel from the project. The three trip generation rates are for independent land uses. When used to generate travel from more than one land use on the same site the rates may overestimate total travel to the site since a portion of the travel from each of the land uses may occur between land uses on the site and not leave the site. Such trips are referred to as "linked trips." The calculations for this project have not been discounted to account for linked trips and thus present a "worst-case" scenario. The calculation of travel demand generated from a proposed health club was stipulated in *Guidelines for Environmental Review: Transportation Impacts*, July *1991*.

/3/ The percentage of travel occurring in the peak period and the peak hour are from the *Transportation Guidelines* has been adjusted to show only outbound (leaving the downtown area in the peak commute direction) travel. The outbound travel consists of all of the office/retail work-related travel and one-half of the other (non-work) travel. Work related (home-bound) travel associated with the residential component of this project would be assigned as in-bound travel.

/4/ Surveys of downtown residential buildings were conducted by Recht-Hausrath and Associates in 1986, and by Environmental Science Associates in 1990.

/5/ San Francisco Department of City Planning, Office of Environmental Review, *The Mission Bay Environmental Impact Report* (86.505E), Vol. II, pp. VI.E.71-78. This document is an analysis of projected growth in the Downtown & Vicinity to the year 2000 and 2020. The transportation analysis in the EIR includes projections of future modal splits for work and other (non-work) travel for the p.m. peak period and peak hour time periods.

/6/ Manual turning movement traffic counts were taken at First Street / Howard Street and Second Street / Howard Street by Environmental Science Associates, on October 23, 1990, and at First Street / Mission Street and Second Street / Mission Street by DKS Associates, on March 29, 1990. The 1990 (post-quake) traffic count data were adjusted, taking into account changes in driving patterns (such as that a higher number of vehicles had used Mission Street to and from the Main Street and Beale Street ramps before the earthquake) to estimate 1990 volumes on a pre-quake road network.

/7/ Manual turning movement traffic count at Second Street / Natoma Street by Environmental Science Associates, November 29, 1990,

/8/ Pedestrian counts were made at Second Street / Howard Street by Environmental Science Associates, Inc. on Thursday, November 29, 1990 from 4:30 p.m. to 5:30 p.m., and on Wednesday, December 12, 1990 from Noon to 1:00 p.m., and at Second Street / Mission Street by DKS Associates on Wednesday, April 4, 1990.

/9/ This reflects the actual vehicular capacity of the existing lots at any time, as currently operated as self-park, and not the total number of vehicles or individuals who may use the facility. For long-term parking, it is recognized that leasing operations often "oversubscribe" parking facilities, selling more leases than the number of vehicles the facility can accommodate at one time, to take care of non-daily users who still wish a long-term lease, and those who are in-and-out during the course of the day. As a result a greater number of parking leases or users may be displaced than the actual vehicular capacity of the facility.

/10/ Informal survey of project area parking facilities by Environmental Science Associates, November 4, 1991.

/11/ San Francisco Department of City Planning, 1980, *Center City Pedestrian Circulation and Goods Movement*, Working Papers 1, 2 and 3, and Final Report.

G. AIR QUALITY

CUMULATIVE CONTEXT

The Mission Bay and South of Market Plan EIRs analyzed cumulative effects of development in the Downtown & Vicinity on regional air quality in the future. This material is incorporated by reference and summarized here. The analyses in those EIRs incorporate recent emission factors (these are revised periodically by the Bay Area Air Quality Management District (BAAQMD)), and acknowledge the continued failure of the Bay area to attain federal ozone (O_3) and carbon monoxide (CO) standards, a problem to which the project would contribute. (For more detail on air pollutant emissions, see Mission Bay EIR, Vol. II, pp. VI.F.13-18).

Motor vehicle exhaust emissions would be the primary source of air pollutants in the Downtown & Vicinity. These emissions would affect local and regional air quality. O_3 and CO concentrations occasionally violate air quality standards at some locations

in the Bay area. Emissions of hydrocarbons (HC) and nitrogen dioxide (NO_x), precursors of O_3, would contribute to regional O_3 concentrations. Emissions would also add to local CO concentrations at congested intersections.

Computer modeling of cumulative CO concentrations at eight intersections analyzed in the Mission Bay EIR (five of which are intersections adjacent to freeway ramps) suggests that state and federal standards for eight-hour average concentrations (nine parts per million [ppm]) currently may be violated on occasion at the intersection of Sixth and Brannan Streets (13.4 ppm) and at the intersection of Third and Berry Streets (9.2 ppm). With the temporary closure of I-280 for repairs, these two intersection are not currently congested; both the normal traffic and the resulting air quality effects have been dispersed to other intersections. When I-280 is re-opened, traffic at the study intersections is expected to return to pre-quake levels, resulting in air quality similar to per-quake conditions. None of the eight intersections are currently in violation of state or federal one-hour standards (20 ppm and 35 ppm, respectively). CO concentrations are expected to improve throughout the region due primarily to better vehicle emission controls. CO concentrations at the eight intersections, even with Mission Bay and cumulative growth in traffic, are projected to decrease. No violations of state or federal CO standards are expected in 2000, or at buildout of Mission Bay in 2020. (For more detail on intersection CO concentrations in the South of Market area, see Mission Bay EIR, Volume II, pp. VI.F.9-10 and 17-18, and Table VI.F.4, p. VI.F.19; South of Market EIR pp. 140-142 and Table 10, p. 143).

The *1982 Bay Area Air Quality Plan (1982 Plan)* established schedules and strategies to comply with federal O_3 and CO standards established under the Clean Air Act by December 31, 1987. The deadline has now passed, and the Bay area remains a non-attainment area for O_3 and CO (standards are occasionally violated). The U.S. Environmental Protection Agency (EPA) has required that the *1982 Plan* be updated by 1991.

Effective January 1, 1989, the California Clean Air Act provides for the designation of districts into three classes: moderate (defined as an area which can attain state and federal air quality standards by December 31, 1994), serious (areas which can attain the standards by December 31, 1997), and severe (areas that cannot specify an attainment date). In each case, the Act specifies strategies that must be adopted. In all

cases, plans are required to demonstrate a five percent per year reduction in the emissions of criteria air pollutants or precursors, unless the California Air Resources Board (ARB) determines that all feasible measures are being employed. BAAQMD is in the process of determining the Bay Area's status./1/

PROJECT EFFECTS

Air quality impacts from a project result from project construction or operation. Construction emissions, primarily dust generated by earthmoving activities and criteria air pollutants emitted by construction vehicles, would have a short-term effect on air quality. Operational emissions, generated by project-related traffic and by combustion of natural gas for building space and water heating, would continue to affect air quality throughout the lifetime of the project.

The analysis in this section provides information that could be used to assess the project in relation to the thresholds of significance recommended by the Bay Area Air Quality Management District's Guidelines for Assessing Impacts of Projects and Plans, revised April 1988. According to these Guidelines, "any project or plan which when added to background levels would generate carbon monoxide (CO) concentrations above the State or Federal carbon monoxide (CO) standards would be of significant effect by definition." A second test of significance states that the level of emissions from a total of direct and indirect sources would be considered significant if emissions of HC, NOx, SOx, or PM_{10} equaled or exceeded 150 lb/day. For mobile sources, curbside CO concentrations are normally modeled; this second test indicates that 550 lb/day of CO would be considered significant only if it were to lead to a violation of State standards under Test One modeling. Finally, "any project or plan should be considered of significant effect if emission of any criteria contaminant for combined direct and indirect sources reaches or exceeds one percent of county emissions of the contaminant." There are two other tests of significance: one applies only to stationary sources and the other applies to projects that would generate population or employment in excess of regional projections.

Construction Emissions

Construction activities would temporarily affect local air quality. Construction activities would not involve burning of any materials and would not create objectionable odor. Grading and other construction activities would temporarily affect

local air quality for about 30 months, causing a temporary increase in particulate dust and other pollutants. Dust emission during excavation would increase particulate concentrations near the site. Dustfall can be expected at times on surfaces within 200 to 800 feet. Under high winds, exceeding 12 miles per hour, localized effects including human discomfort might occur downwind from blowing dust. Construction dust is composed primarily of particularly large particles that settle out of the atmosphere more rapidly with increasing distance from the source. More of a nuisance than a hazard for most people, this dust could affect persons with respiratory diseases, as well as sensitive electronics or communications equipment. The project sponsor would require the contractor to wet down the construction site twice a day during construction to reduce particulates by at least 50 percent, would require covering soil, sand and other material, and would require street sweeping around demolition and construction sites at least once per day (see Mitigation, p. 174).

Operation Emissions

Upon completion, project operation would affect local air quality by increasing the number of vehicles on project-impacted roads and at the project site, and by introducing stationary emissions to the project site. Transportation sources would account for over 90 percent of operational project-related emissions. Stationary source emissions, generated by combustion of natural gas for building space and water heating, would be less-than-significant.

Since the future of the Beale Street ramp to I-80 is uncertain, curbside CO concentrations at selected local intersections that would be affected by project-generated traffic and by cumulative development traffic were projected for conservative conditions for two different scenarios: one in which the Beale Street on-ramp would reopen, and one in which it would remain closed. Curbside CO concentrations for both of these scenarios are compared with ambient standards in Table 8.

Currently (1991) neither the one- nor the eight-hour air quality standards are being violated at any of the project area intersections. In 2000, the average vehicle is expected to emit less CO than in 1991, due to ongoing state and federal emissions controls. Assuming the existing freeway configuration remains the same, air pollutant emissions from project-generated traffic at these intersections are not projected to violate the standards. Were the Beale Street on-ramp to reopen, CO concentrations at

TABLE 8: EXISTING AND PROJECTED CURBSIDE CARBON MONOXIDE CONCENTRATIONS AT SELECTED INTERSECTIONS

Intersection	Averaging Time	Concentration (ppm) /a/ 1990	2000/b,c/
Mission and First Streets	1-hour	9.8	8.6 (8.4)
	8-hour	6.9	6.0 (5.9)
Howard and First Streets	1-hour	10.4	8.8 (8.6)
	8-hour	7.2	6.1 (6.0)
Mission and Second Streets	1-hour	9.6	8.2 (8.2)
	8-hour	6.7	5.7 (5.7)
Howard and Second Streets	1-hour	9.6	8.2 (8.1)
	8-hour	6.7	5.7 (5.7)

/a/ Calculations for all scenarios were made using a revised version of the Modified Linear Rollback (MLR) method described in the Downtown Plan EIR. Background concentrations were calculated to be 5.8 ppm for eight hours in 1990, and 5.0 ppm for eight hours in 2000. Any underlined values would be in violation of the state or federal CO standards. The one-hour State standard is 20 ppm, the one-hour federal standard is 35 ppm, and the eight-hour State and federal standards are nine ppm. Emission rates were derived from the California Air Resources Board EMFAC7D computer model, from the BAAQMD's Guidelines, revised April 1988.

/b/ Based on the growth forecasts contained in the Mission Bay EIR. The project is contained within this forecast.

/c/ Figures without parentheses are calculated with the assumption that the Beale Street on-ramp would be open. Figures in parentheses are based on traffic figures that assume the Beale Street on-ramp would be closed.

SOURCE: Environmental Science Associates, Inc.

Howard and First Streets and at Howard and Second Streets would decrease slightly; all other estimated CO concentrations would be the same as for the closed-ramp scenario. No violations of the state or federal one- or eight-hour standards would be expected.

Table 9 on p. 156 shows projected daily emissions of pollutants in year 2000 from project-generated traffic, and compares them with San Francisco County transportation-related emissions and total transportation-related emissions in the Bay area. The project would contribute less than 0.1 percent to the transportation-related

TABLE 9: PROJECTED DAILY TRANSPORTATION-RELATED AIR POLLUTANT EMISSIONS

Pollutant	(tons per day)/a/ Project 2000/a,b/	SF County 2000/c/	Bay Area 2000/c/
Hydrocarbons	0.01	14	160
Nitrogen Oxides	0.02	22	270
Carbon Monoxide	0.21	120	1,400
PM_{10}	0.03	28	310
Sulfur Oxides	0.00	28	83

/a/ Project emissions were calculated using BAAQMD EMFAC7D vehicle emission factors. Emissions of HC, NO_x, and CO include an assumed six minutes of idling time per vehicle trip. Emissions of particulates include dust disturbed from roadway surfaces.
/b/ Based upon a weighted daily average of about 12,000 vehicle-miles traveled.
/c/ San Francisco County and Bay area emissions correspond only to transportation-related emissions based on BAAQMD Emissions Inventory Summary Report (August 1987), and year 2000 emissions inventory for the Bay area provided by Tirlochan Mangat, Manager, Special Projects Section, BAAQMD.
/d/ Sulfur oxides and sulfur dioxides are assumed to be interchangeable.

SOURCE: Environmental Science Associates, Inc.

emissions inventory for San Francisco in 2000, which is below the one-percent threshold established by the BAAQMD defining a potentially significant impact on air quality./2/

Air quality at the project site is determined by a complex combination of pollution sources. Currently, there are approximately 134 parking spaces on the residential tower site and 16 spaces on the office/retail building site. The site is adjacent to the TransBay Bus Terminal and a parking garage; busses idling in the terminal and traveling on nearby roadways (the main exit ramp from the terminal, which is within 100 ft. of the project site) contribute to local air pollutant concentrations at the project site. The parking garage, beneath the TransBay Terminal, is a three-level garage accommodating approximately 450 vehicles; emissions from automobiles entering and exiting this garage also add to local air pollutant concentrations.

The project would create a net addition of 228 parking spaces (24 additional above-ground spaces and 204 underground spaces). With 28 cars parked in tandem, the additional parking would facilitate 256 net additional cars on the site. This would lead to a net increase in vehicle-generated air pollutant emissions. The project's above-ground parking lots would be open on at least three sides; these lots would not require mechanical ventilation. The project would yield a net increase in above-ground parking spaces, which would probably lead to a net increase in CO concentrations at the project site.

The underground parking facility would be equipped with a mechanical ventilation system, which would be designed in accordance with state building codes. The ventilation system would circulate fresh air through the parking lot, and would pump circulated air from the parking lot into the atmosphere at a minimum rate of 1.5 cubic feet per minute per square foot of parking space. The exit vent would probably be located approximately ten feet above ground level./4/ Air pollutant emissions from this ventilation system would contribute to local air quality degradation.

Project emissions would contribute to local air pollution at the project site; however, it is unlikely that project-generated stationary and mobile emissions would cause violations of state or federal air pollution standards. The project's contribution to local CO concentrations would be less-than-significant.

CUMULATIVE IMPACTS

The San Francisco Bay Area has been designated as non-attainment for the state, CO, O_3 and PM_{10} concentration standards. Although project emissions alone probably would not lead to violations of any of these standards, project-generated emissions would contribute to cumulative emissions of problem air pollutants in the Bay Area.

NOTES - Air Quality

/1/ Patrick Navis, California Air Resources Board Liaison to the Bay Area Air Quality Management District, telephone conversation. January 8, 1991.

/2/ Bay Area Air Quality Management District, 1985, Air Quality and Urban Development; Guidelines for Assessing Impacts of Projects and Plans.

/3/ Air pollutant monitoring was done by TMA NorCal on January 30, 1991, from 5:00 p.m. to 6:00 p.m. and on May 30, 1991, from 4:00 p.m. and 7:00 p.m. Concentrations were monitored at a receptor height of 10 feet.

/4/ Clark Bisel. Flack and Kurtz, Mechanical Consultants, telephone conversation, January 16, 1991.

H. CONSTRUCTION NOISE

Ambient noise in the project vicinity is typical of noise levels in downtown San Francisco, which are dominated by vehicular traffic, including trucks, cars, MUNI buses and emergency vehicles. A sidewalk noise measurement taken during the weekday evening peak commute time shows average noise levels of about 73 dBA, Leq, at the corner of Howard and Second Streets./1,2/ The Downtown Plan EIR indicates day-night weekday noise levels of about 75 dBA, L_{dn} along Howard Street and 71 dBA, L_{dn} along Second Street in the vicinity of the project./3,4/

Project construction would take place over about 30 months, and would increase noise levels in surrounding areas. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and listener, and presence or absence of barriers between noise source and listener. To estimate probable noise impacts, this analysis assumes typical equipment and construction techniques. Table 10 on p. 159 shows typical exterior noise levels associated with the different phases of construction (see Appendix F, p. A.60, for a table of typical noise levels found in the everyday environment). Interior noise levels at 50 ft. from the noise source would be about 10 to 15 dBA less than those shown in Table 10. Closed windows would reduce noise levels by about 20 to 25 dBA below those shown in the Table 10.

Construction noise is regulated by the San Francisco Noise Ordinance (Article 29 of the City Police Code). The Ordinance requires that sound levels of construction equipment other than impact tools not exceed 80 dBA at a distance of 100 ft. from the source. Impact tools (jackhammers, piledrivers, impact wrenches) must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. Section 2908 of the Ordinance prohibits construction work from 8:00 p.m. to 7:00 a.m., if noise would exceed the ambient noise level by five dBA at the project property line, unless a special permit is authorized by the Director of Public Works.

TABLE 10: TYPICAL COMMERCIAL/INDUSTRIAL CONSTRUCTION NOISE LEVELS, 50 FEET FROM SOURCE

Construction Phase	Duration of Phase (weeks)	Average Noise Level (dBA)
Ground clearing	4	84
Excavation	8	89
Foundations/a/	8	78
Erection	80	85
Exterior Finishing	32	89

/a/ Time includes four weeks of piledriving; noise level is for activities other than piledriving. Noise levels during piledriving could reach 101 dBA at 50 ft. from the source.

SOURCE: Bolt, Beranek and Newman, December 31, 1971, *Noise from Construction Equipment and Home Appliances*, U.S. Environmental Protection Agency.

The project would require piledriving. Piledriving would occur intermittently over about four weeks; hammering would occur during a five- to eight-minute period for each pile. Conventional unmuffled and unshielded pile drivers emit noise levels of 100 to 110 dBA at a distance of 100 ft. each time the driver strikes the pile. The Department of Public Works allows piledriving operation under certain conditions, which may include specifying relatively quiet equipment, predrilling pile holes, and/or specifying hours of operation to reduce the number of people exposed to noise effects.

If piledriving were to occur during the daytime, employees and other occupants of the adjacent light industrial and office uses would be affected. Noise levels at receptors near the project site would depend on their distance from the noise source and on the presence or absence of noise barriers. In offices close to the site on the west (at 143 Second Street), noise levels during piledriving could reach 80-85 dBA with windows open and 70-75 dBA with windows closed during piledriving activities. This noise level would result in occupants having to shout to communicate and would make telephone conversations difficult. These noise levels would require windows to be closed and normally would require noise barriers to be erected between the construction noise source and the receptor.

Dahl-Beck Electric Co., located across Natoma Street, approximately 100 ft. from the project site, would be subjected to substantial noise levels during piledriving activities. The entrance to the electric company is a large warehouse door, left open during working hours; because the building envelope would provide little attenuation, noise levels in the Dahl-Beck building could be as high as 95 dBA. "The Carribbean Zone," a restaurant and bar about 100 ft. from the projectsites southeastern corner, provides service until 11:00 p.m. on most evenings. Noise levels from piledriving on the project site would be about 93 dBA outside the restaurant. Interior noise levels would be approximately 68-73 dBA. Spatters Restaurant, at 74 Minna Street, would be subjected to greater noise levels; interior noise levels at the restaurant would reach 76-81 dBA during piledriving activities. The project sponsor would require that the construction contractor limit pile driving activity to result in the least disturbance to neighboring uses, and would consult with the Public Works Department to determine the least disruptive time for piledriving. Pile holes would be predrilled, which would reduce the duration of pounding for each pile.

Vibrations from the impact during piledriving would be felt in adjacent and nearby buildings. These vibrations have been found to be more disturbing to some people than high noise levels. Noise at levels greater than 60 dBA can interfere with normal speech and concentration, noise levels greater than 70 dBA would require workers to close windows or shout to communicate. General stress reaction has been observed in humans exposed to brief sounds of 75 dBA./5/ At noise levels of 85 dBA, normal conversation is extremely difficult, and sleep or rest virtually impossible. Intermittent noises, such as piledriving noise, reduce perception of control over the environment. This perceived loss of control frequently results in a depressed mood and depressed motivation. It has also been shown that high noise levels can lead to elevated blood pressure./6/ Repeated impulse and intermittent sounds of high level appear more likely to disrupt performance than continuous or steady sounds of comparable level./7/

The Department of Health, Education, and Welfare (DHEW) suggests maximum non-occupational noise exposure criteria in order to avoid hearing damage or loss. For a sound level of 95 dBA, the maximum daily (eight-hour) exposure time is 30 minutes./8/ The peak construction noise level at Dahl-Beck Electric Co. would be 95 dBA, L_{eq}. Assuming that pile-driving would occur for eight hours per day, and

that the actual impacts from pile-driving were to occur for no more than five minutes per hour (for a total of 40 minutes per day), the noise level at Dahl-Beck Electric Co. would be slightly greater than the maximum noise levels of 95 dBA for 30 minute exposure recommended by the DHEW for an eight-hour period.

Noise generated during piledriving could be reduced by erecting barriers around the project site. Barriers may include such items as berms, walls, etc., that would affect sound propagation by interrupting it and creating an "acoustic shadow zone." The more solid, high and wide a noise barrier, the more effectively it attenuates noise. A wall may provide maximum noise reductions up to 20 dBA, while a berm may reduce noise levels a maximum of 23 dBA./9/

Additional developments in the immediate project vicinity are in different stages of environmental review, project approval or construction: One Second Street is currently being reviewed, and 299 Second Street, 524 Howard Street, 101 Second Street, 222 Second Street, and 300 Howard Street are approved but not under construction. Should any of these projects' construction schedules coincide with that of the proposed project, noise levels would be expected to increase by two to five dBA. This increase would be audible (depending on the loudness of the activity) and would probably be annoying, since noise from construction of one project would be annoying to the nearest receptors (those within 100 ft.). Should one project be completed and a second begin soon after, noise impacts would be prolonged.

In summary, during the majority of construction activity, noise levels would be above existing levels in the project area. There would be times, particularly during the operation of piledrivers or impact wrenches, when noise would interfere with indoor activities in nearby offices and light industrial land uses.

NOTES - Construction Noise

/1/ Noise measurement was taken by ESA staff on January 31, 1991 from 4:30 p.m. to 5:30 p.m. using a Metrosonics dB-306A Metrologger with calibration prior to the measurement. The measurement was taken at the corner of Howard and Second Streets, approximately 15 ft. from the roadway edge.

/2/ A decibel (db) is a logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels. A dBA is a decibel corrected for the variation in frequency response to the typical human ear at commonly encountered noise levels.

/3/ Ldn, the day-night average noise level measurement, is based on human reaction to cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of nighttime noises. Noise between 10:00 p.m. and 7:00 a.m. is weighted 10 dBA higher than daytime noise.

/4/ San Francisco Department of City Planning, *Downtown Plan Environmental Impact Report (EIR)*, EE81.3, certified October 18, 1984, Volume 1, pp. IV.J.1-19, particularly Table IV.J.2, pp. IV.J.9-10.

/5/ The Central Institute for the Deaf, Effects of Noise on People, U.S. EPA, 1971.

/6/ Sheldon Cohen, et al., "Cardiovascular and Behavioral Effects of Community Noise," American Scientist, Volume 69, October 1981.

/7/ National Institute for Occupational Safety and Health, Occupational Exposure to Noise, U.S. Department of Health, Education and Welfare, 1972.

/8/ A. Cohen et. al., "Sociocusis--Hearing Loss from Non-Occupational Noise Exposure," Sound and Vibration 4 (11) 12-20, November, 1970, in Cornett, C. and Hina, C., Methods for Predicting Noise and Vibration Impacts, January 31, 1979.

/9/ U.S. Department of Transportation, Federal Highway Administration, Highway Noise, December 1978.

I. GEOLOGY AND SEISMICITY

The project site is at about 11 ft., San Francisco City Datum (SFD)./1/ Surficial fill soils at the site are composed of loose to medium dense sandy fill with brick and concrete fragments about seven to nine ft. thick. This, in turn, is underlain by about 18 to 20 ft. of medium dense to dense fine sand (dune sand), and ten to 20 ft. of medium dense clayey sand and stiff clay (marsh deposits). These deposits are underlain by 30 to 40 ft. of interbedded layers of sand and clayey sand, and 60 to 70 ft. of Old Bay Clay. Groundwater levels are expected to be encountered at about 24 to 26 ft., SFD./2/

Excavation for the residential project foundation, elevator pits and three levels of underground parking would be conducted to a depth of about 25 ft. below the SFD. A driven pile foundation, supported in the bearing sands, is proposed. See pp. 158 to 162 for a discussion of construction noise and vibration impacts.

Dewatering would be required during excavation for the residential tower. Dewatering could cause some settlement of adjacent buildings. Measures to mitigate this potential impact are included in the proposed project (see mitigation, pp. 175 to 176).

Pit walls would be shored up to prevent lateral movement during excavation. Two adjacent structures fronting Second Street would need to be underpinned, since excavation would go below the base of the existing foundations, to avoid such damage as cracking of walls or foundations or sagging of floors. The building contractor must comply with the *San Francisco Building Code* and the Excavation Standards of the California Occupational Safety and Health Agency. Additionally, lowering of the local water table by project dewatering could result in rotting of wooden piles in the site vicinity. A measure to mitigate such an impact is included in the proposed project (see p. 176). Another measure to mitigate the effects of dewatering included in the proposed project describes a preconstruction survey of adjacent buildings and streets to establish (and maintain) existing elevations. (see p. 175).

The closest active faults to San Francisco are the San Andreas Fault, about nine miles southwest of Downtown; the Hayward Fault, about nine miles northeast of Downtown; the San Gregorio Fault, about 20 miles west of Downtown; and the Calaveras Fault, about 22 miles east of Downtown. The project area would experience strong (Intensity Level D: general but not universal fall of brick chimneys; cracks in masonry and brick work) groundshaking during a major earthquake./3/ The building would be required to meet current seismic engineering standards of the San Francisco Building Code.

The Downtown Plan EIR includes information on Seismic Safety issues in the C-3 District of downtown. That information remains current. The *South of Market Plan EIR* provides similar information for that area, as does the *Mission Bay EIR* for its project area. These EIRs do not provide any new data about seismic issues that establish a need for revisions in the *Downtown Plan EIR* information or conclusions.

In summary, the Downtown & Vicinity, like other parts of San Francisco and the Bay Area, is subject to potentially large earthquakes from the San Andreas and Hayward faults. Relatively more of the land in Downtown & Vicinity is subject to violent groundshaking intensity than the rest of the City because the eastern edge of the area, including nearly all of Mission Bay. is built on filled land. Residential uses, such as that expected in the proposed project, would result in larger numbers of persons being exposed in the future to earthquake hazards if a seismic event occurred during the evening or on a weekend or holiday. Employment growth such as that expected in the proposed new buildings would expose more people in the future to hazards of an

earthquake that occurred during the work day. New buildings are subject to more stringent building and structural standards than are older buildings. Therefore, persons residing or working in buildings such as the proposed project would be relatively safer than those in some older existing buildings. However, during an earthquake, glass, and in some cases building cladding, is expected to endanger those on the streets and sidewalks. The bridges leading to/from San Francisco are expected to be closed for over three days due to damaged access ramps. The same would be true of the freeways heading south to the Peninsula. MUNI and Caltrain would be out of service for some time, and power outages would occur for at least one or two days. (See Downtown Plan EIR pp. IV.K.1-17a; Mission Bay EIR, Vol. II, pp. VI.K.11-15 and 33-43; South of Market EIR, pp. 154-174.)

A moderate earthquake with an estimated magnitude of 7.1 on the Richter Scale occurred in the Bay Area in October 1989. The earthquake lasted about 15 seconds and caused damage in the epicentral region in Santa Cruz, Watsonville, Hollister and Los Gatos. San Francisco and other areas, as far as 50 miles from the epicenter, were also damaged.

Casualties and damage were caused by falling objects, collapsed structures, fire and miscellaneous injuries (such as heart attacks). Most of the casualties and damage were a result of ground shaking which caused the Cypress structure of I-880 to collapse, as well as collapse of a section of the Bay Bridge which rendered it closed to traffic for one month. The Cypress structure has since been demolished. Other structural damage was incurred on the Embarcadero Freeway, which is being demolished and portions of I-280 and U.S. 101 (a further description of the damage is provided on p. 69). In addition, several masonry structures (including brick chimneys) failed. Wood-frame buildings were jolted off their foundations in areas near the epicenter as well as in San Francisco and other Bay Area cities.

Ground failure also occurred, most notably in the Santa Cruz area near the epicenter. Landslides resulted in road closures and damage to structures. Liquefaction and ground settlement occurred in places further from the epicenter (for example in the Marina District and the area south of Market Street in San Francisco, and the Oakland International Airport). Fires resulted from ruptured utility lines. The type of damage

caused by the earthquake is typical of moderate-sized earthquakes. Damage that occurred at distances up to 50 miles from the epicenter is evidence that the project area may be adversely affected by earthquakes occurring on any of the region's major faults.

Damage in the South of Market area was basically confined to buildings constructed prior to 1970. An earthquake of similar magnitude to (or larger than) the 1989 earthquake could occur again on the San Andreas, Hayward, or Calaveras faults. The Mission Bay EIR analyzes seismic impacts for an 8.4 magnitude earthquake on the Richter scale on the San Andreas Fault, a 6.9 magnitude on the Hayward Fault, a 7.3 magnitude on the Calaveras Fault, and a 7.1 magnitude on the San Gregorio Fault and describes damage conditions that generally are greater than what were experienced in October 1989. Other active faults in the region could produce smaller earthquakes.

NOTES - Geology and Seismicity

/1/ San Francisco City Datum establishes the City's zero point for surveying purposes at approximately 8.6 ft. above mean sea level.

/2/ Harding Lawson, Associates, Preliminary Geotechnical Study, Natoma Mews, Natoma Street, San Francisco, California, December 12, 1990.

/3/ URS/John A. Blume and Associates, San Francisco Seismic Safety Investigation, 1974. Groundshaking intensities that would result from a major earthquake were projected and classified on a five-point scale ranging from E (Weak) through A (Very Violent).

J. EMPLOYMENT AND POPULATION

PROJECT EMPLOYMENT

Removal of the existing 134-space surface parking lot on the project site would result in the loss of one job. At full operation, the project would accommodate about 139 workers on the site, consisting of about 69 office workers, 38 retail workers, 14 health club employees, and 18 building maintenance/security/parking workers./1/ The net increase of 138 employees accommodated by the project would represent about .04 percent or less of the C-3 District total employment in 2000. The impact would be about 0.2 percent of citywide growth between 1985 and 2000.

About 198 additional jobs in the Bay Area would result from the employment multiplier effect of project operation./2/ Construction of the new project would require about 143 person-years of construction labor./3/ Construction labor for the

project would represent about 0.23 percent of the total person years of construction labor forecast for the C-3 District from 1984 through 2000. About 29 additional person-years of employment would be generated in the Bay Area, as a result of the multiplier effect of project construction./4/

CUMULATIVE HOUSING DEMAND AND POPULATION GROWTH

The Mission Bay and South of Market Plan EIRs discuss residence patterns in a City-wide and regional context, in relation to housing demand from employment growth in the Downtown & Vicinity. San Francisco employment growth, including employment generated by the proposed project, will contribute to housing demand throughout the region, as not all San Francisco workers will live in the City. The project, however, which provides 509 new residential units, would accommodate housing demand generated by existing and future employment growth in the Downtown & Vicinity. If housing is built as proposed in areas of San Francisco such as Mission Bay, more City workers could live in the City, in which case San Francisco would contribute less to housing demand in the rest of the region.

Regardless of the type of development in Mission Bay and in South of Market, the importance of San Francisco employment as a factor affecting regional housing demand will decline over time because more housing will be added in the City relative to job growth, compared to the situation in the past. As housing and the labor force continue to grow more rapidly outside San Francisco, people working in San Francisco will represent the same or a smaller percentage of the employed people living elsewhere in the region. San Francisco workers will require about the same share of the region's housing in the future as they did in the early 1980's. The price of housing in San Francisco is expected to remain high relative to other areas in the region. This, combined with continued demand for lower cost housing, would continue to create upward pressure on costs/rents of existing units.

About half of the people working in the Downtown & Vicinity would live in the City in 2000 and 2020. The rest would live in communities throughout the rest of the region: about 30 percent in the East Bay, 13 percent in the Peninsula and in the South Bay and about eight percent in the North Bay. Downtown & Vicinity workers living in the City would represent about 55 percent of the City's employed residents in 2000

and 57 percent in 2020. People working downtown would represent a considerably smaller proportion (about four to nine percent) of the employed residents of other Bay Area communities. (See Mission Bay EIR, Vol. II, pp. VI.C.56-61, 83-84 and 92-97, and Vol. III, pp. XIV.C.28; South of Market EIR pp. 66-67.)

The Mission Bay EIR forecasts show about 32,080 to 34,730 housing units in the Downtown & Vicinity in the year 2000, an increase of about 6,440 to 9,090 units over the number of housing units existing in 1986. The range of additional housing units forecast depends on which Mission Bay development scenario is approved and built; background (excluding Mission Bay development) housing production is forecast at 460 housing units added to the Downtown & Vicinity each year between 1986 and 2000. The Mission Bay EIR forecasts a resident population in the Downtown & Vicinity of 57,420 to 62,650 in 2000, an increase of about 11,090 to 16,320 persons, depending on the development scenario for Mission Bay; the *Mission Bay EIR* forecasts of population assumed on average household size of 2.3 persons-per household for 1986 through 2000, for Downtown & Vicinity and Rest of City forecasts.

PROJECT HOUSING AND POPULATION GROWTH

Construction of the proposed project would add 509 residential units to the project site. This addition would contribute about eight percent of the total housing units projected to be added to the Downtown & Vicinity between 1986 and 2000 as forecast in the Mission Bay EIR. At full occupancy, the 509 residential units would result in the addition of approximately 809 new residents on the site./5/ Based on Mission Bay EIR forecasts, the 809 new residents accommodated by the project would represent about one percent of the total residential population of the Downtown and Vicinity in 2000.

The project would accommodate current and future demand for housing in the Downtown & Vicinity. It is expected that most persons living in the project would work in the C-3 District.

Construction of the proposed 509 residential units would exceed the number of new residential units predicted by the *Mission Bay EIR* to be constructed annually in the Downtown & Vicinity for each year between 1986 and 2000. Overall, however, the project would be part of total C-3 residential growth projected in the *Mission Bay EIR*.

NOTES - Population and Employment

/1/ Employment is calculated from the estimates of sq. ft. of building space from the project description. Based on C-3 District employment density factors from the San Francisco Department of City Planning, *Downtown Plan EIR*, EE81.3, certified October 18, 1984 (268 sq. ft. per office employee; 350 sq. ft. per retail employee; 777 sq. ft. per health club employee; and 12,500 sq. ft. per maintenance/security/parking employee). Residential floor area was subtracted from the total building floor area for calculation of maintenance/security/parking employees.

/2/ Indirect employment projections are based on *1982 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Association of Bay Area Governments, 1988 Update. A multiplier of 1.45 was used for office jobs, 1.24 for retail jobs, 1.49 for health club jobs and 1.64 for maintenance jobs. The multipliers used were the Type I multipliers plus ten percent of the difference between Type I and Type II employment multipliers contained in this model.

/3/ Richard France. Cahill Contractors Inc., letter of June 7, 1991.

/4/ *1982 Input-Output Model and Economic Multipliers for the San Francisco Bay Region*, Association of Bay Area Governments, 1988 Update. A multiplier of .204 (Type I plus ten percent of the difference between Type I and Type II) was used for residential construction jobs.

/5/ Site population is calculated from the 1985 persons per household average of 1.59 for the Downtown and Vicinity as reported in the Mission Bay EIR 86.505E, Vol, II, Table VI.C.3.

K. GROWTH INDUCEMENT

The project would introduce about 509 residential units, about 18,600 gsf of office space, approximately 13,240 gsf of retail space, and an 11,080 gsf health club to the site. Currently one person is employed on the project site. At full operation, the project would accommodate about 139 workers on-site, comprising about 69 office workers, 38 retail workers, 14 health club employees and 18 building maintenance /security / parking workers./1/ Net increase in employment on the project site would be about 138 workers on site.

Residents of the proposed project could include those moving from other San Francisco locations, those relocating from outside San Francisco, and those new to the Bay Area. The increase in residential population at the project site, therefore, would not necessarily represent residents that are new to San Francisco. If marketed successfully, the project, together with other residential development in the downtown, could have growth-inducing effects by demonstrating a developing market for residential uses in this area of downtown. Such a demand would reflect the trend of

growth in the service sector, headquarters office activities, and employment in San Francisco, and the need to provide housing for those workers. With 509 residential units for about 809 persons, the project would respond to this local and regional demand for housing.

Any net increase in employment and residential population downtown would increase the demand for retail goods and services in the area. The project would intensify this demand by increasing the amount of employment and residential units on the site, thereby increasing demand for goods and services in the vicinity. Increases in employment downtown would also increase demand for business services, to the extent that the expanded space would not be occupied by firms providing those services. In response, demand would increase for existing space and possibly for further new development.

The project would be built in a developed urban area, and no expansion to the municipal infrastructure not already under consideration would be required to accommodate new development and increased employment due to, or induced by, the project.

NOTE - Growth Inducement

/1/ Employment is calculated from the estimates of sq. ft. of building space from the project description. C-3 District employment density factors from the San Francisco Department of City Planning, *Downtown Plan EIR*, EE81.3, Certified October 18, 1984 are: 268 sq. ft. per office employee, 350 sq. ft. per retail employee, 777 sq. ft. per health club employee, and 12,500 sq. ft. per maintenance / security / parking employee. Residential floor area was subtracted from the total building floor area for calculation of maintenance / security / parking employees.

VI. MITIGATION MEASURES PROPOSED TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE PROJECT

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the proposed project. Some of these measures have been, or would be, adopted by the project sponsor or project architects and contractors and thus are proposed; some are under consideration. Implementation of some may be the responsibility of public agencies. Measures under consideration may be required by the City Planning Commission as conditions of project approval, if the project were to be approved.

Each mitigation measure and its status are discussed below. There are several items required by law which would serve to mitigate impacts, and are summarized here for informational purposes. These measures include: no use of mirrored glass on the building to reduce glare, as per City Planning Commission Resolution 9212; contribution of funds for transportation service per the Transit Impact Development Fee, Board of Supervisors Ordinance #224-81; provision of off-street bicycle storage pursuant to Section 155 of the *Planning Code*; provision of building directories and signs for service elevators located in loading areas, pursuant to Section 155 of the *Planning Code*; limitation of construction-related noise levels, pursuant to the *San Francisco Noise Ordinance* (Article 29 of the *San Francisco Police Code*, 1972); preparation of an Emergency Response Plan for occupant response to fire or other emergencies, pursuant to Section 12.202(e)(1) of the San Francisco Fire Code; consultation with and approval from the San Francisco Department of Public Works Industrial Waste Division if treated groundwater were to be discharged to the City sewer; handling and transportation of hazardous wastes done under manifest and restricted to persons with appropriate training and licensing; and observance of federal and state OSHA safety requirements for hazardous waste sites including the hazardous waste site safety training requirements of 29 *CFR* 1910.120. Additional measures which are not required by legislation but which would also serve to mitigate environmental impacts appear below. Mitigation measures below preceded by an asterisk (*) are from the Initial Study (see Appendix A, pp. A.1 - A.30).

VISUAL QUALITY

MEASURE PROPOSED AS PART OF THE PROJECT

*• In order to reduce obtrusive light or glare, the project sponsor would use no mirrored glass on the building.

CULTURAL RESOURCES

MEASURES PROPOSED AS PART OF THE PROJECT

- The sponsor would retain the service of an archaeologist. The Environmental Review Officer (ERO) in consultation with the President of the Landmarks Preservation Advisory Board (LPAB) and the archaeologist would determine whether the archaeologist should instruct all excavation and foundation crews on the project site of the potential for discovery of cultural and historic artifact, and the procedures to be followed if such artifacts are uncovered.

  Given the possibility of encountering the remains of cultural or historic artifacts within the project site, prior to the commencement of foundation excavations the project sponsor would undertake a program of archaeological testing. This would consist of observation and monitoring by a qualified historical archaeologist of site clearance of at least any material below existing grade level, and the placement of a series of mechanical, exploratory trenches. The archaeologist would supervise the testing at the site to determine the probability of finding cultural and historical remains. At the completion of the archaeological testing program, the archaeologist would submit a written report to the ERO, with a copy to the project sponsor, which describes the findings, assesses their significance and proposes appropriate recommendations for any additional procedures necessary for the mitigation of adverse impacts to cultural resources determined to be significant.

  An historical archaeologist would be present during site excavation and would record observations in a permanent log. The ERO would also require cooperation of the project sponsor in assisting such further investigations on site as may be appropriate prior to or during project excavation, even if this results in a delay in excavation activities.

  In addition, a program of on-site construction monitoring by a qualified historical archaeologist, designed to allow for the recovery of a representative sample of the cultural materials existing on the site, would be implemented by the project sponsor. This monitoring and recovery program would result in a written report to be submitted to the ERO, with a copy to the project sponsor.

  Should archaeological resources be found following commencement of excavation activities, the archaeologist would assess the significance of the find, and immediately report to the ERO and the President of the LPAB. Upon receiving the advice of the consultants and the LPAB, the ERO would recommend specific mitigation measures, if necessary. Excavation or construction activities which might damage the discovered cultural resources would be suspended for a maximum of four weeks (cumulatively for all instances

where the ERO has required a delay in excavation or construction) to permit inspection, recommendation and retrieval, if appropriate.

Following site clearance, an appropriate security program would be implemented to prevent looting. Any discovered cultural artifacts assessed as significant by the archaeologist upon concurrence by the ERO and the President of the LPAB would be placed in an appropriate repository as determined by the ERO. Copies of the reports prepared according to these mitigation measures would be sent to the California Archaeological Site Survey Office at Sonoma State University along with three copies to the ERO.

HAZARDOUS MATERIALS

MEASURES PROPOSED AS PART OF THE PROJECT

- A site-specific Mitigation Plan and a Safety and Health Plan for hazardous materials and waste operations would be prepared and submitted to the San Francisco Department of Public Health before site activities would proceed. The site-specific Safety and Health Plan, which would be applicable to all activities at the site prior to completion of site remediation, would establish policies and procedures to protect workers and the public from potential hazards posed by hazardous wastes. The Plan would be prepared according to federal and California OSHA regulations for hazardous waste site Safety and Health plans (if such regulations are not adopted prior to initial site activities, National Institute for Occupational Safety and Health guidelines /1/ would be followed). The site safety officer's log would be made available to the San Francisco Department of Public Health for inspection.

- The site mitigation plan would include a dust control program, to minimize potential public health impacts associated with exposure to contaminated soil dust.

- Reports (including sample locations, chain of custody forms, and laboratory analysis reports) of further site investigations (if any) would be sent to the San Francisco Department of Public Health.

- A report describing the remediation process in detail and certifying completion of remediation would be prepared by a Registered Environmental Assessor (REA) or registered engineer, and submitted to the San Francisco Department of Public Health. The report would include copies of hazardous waste transport manifests. The REA or registered engineer would submit a certification that in his/her judgement completion of the remediation would mitigate significant environmental or health and safety risks likely to be caused by the hazardous wastes in the soil.

- Prior to any excavation, a magnetic tank-locating survey would be carried out to ascertain whether any underground tanks exist at the site, and if so, their locations. If USTs were determined to be present, the San Francisco Department of Public Health would be consulted to determine whether they should be removed or left in place (as required by law).

- From the time that the current pavement covering the site is taken up until the time that all remedial activities have been completed, a buffer zone would be put in place around the contaminated area within site boundaries and site access would be restricted to necessary personnel. This would serve to prevent impacts associated with accidental public access to the site.

- The project sponsor would employ licensed brokers or registered hazardous waste treatment engineers to handle its hazardous waste disposal needs, if any. Use of brokers or registered engineers would promote economical application of latest and best methods for waste handling of contaminated soils, such as recycling, reuse, waste minimization, or treatment or destruction of non-reusable waste using newly developing technologies.

- Warning signs prohibiting access by the general public onto the project site would be posted at all construction access points. Access would be limited to authorized personnel only.

- The property owner would submit a signed Certificate Report to the San Francisco Department of Public Health and the Department of City Planning, Office of Environmental Review (OER), stating that he/she certifies that all necessary mitigation measures have been implemented and containing documentation verifying that mitigation is complete.

TRANSPORTATION

MEASURES PROPOSED AS PART OF THE PROJECT

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to minimize interference with pedestrian traffic.

- Secure, safe bicycle storage facilities would be provided relative to the demand generated by project residents and employees. (Note: City Planning Code Section 155(j) requires one bicycle space for every 20 vehicle spaces provided, or 20 bicycle spaces for the project).

- Building directories and signs for the service elevators would be placed in the loading area.

- The parking driveway would include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure.

- During the construction period, construction truck movement would be permitted only between 9:00 a.m. and 3:30 p.m. to minimize peak-hour traffic conflicts and to accommodate queueing of MUNI buses prior to the peak hours. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Department of Parking and Traffic, the Fire Department, MUNI and the Department of City Planning to determine feasible traffic mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction or which later become known.

MEASURE UNDER CONSIDERATION BY PROJECT SPONSOR

- While subsurface sidewalk vaults are discouraged, should vaults be installed as part of the project the project sponsor could design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design shall be of sufficient strength to carry maximum vehicular live and dynamic loads. Design

of the vault area to accommodate streets trees could also be made, subject to Department of Public Works approval. In addition should vaults exist or be installed as part of the project, the project sponsor could accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, street trees, signs, benches, etc. within project vault areas. Placement of such improvements is entirely within the discretion of the City. Should the City at any future time determine its need for any sidewalk space occupied by the project, for any reason, the project sponsor would agree to waive all rights of appeal of revocation of permits to occupy such space.

MEASURE THAT COULD BE IMPLEMENTED BY PUBLIC AGENCIES

- Pacific Gas & Electric Company could coordinate work schedules with other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

AIR QUALITY

MEASURES PROPOSED AS PART OF THE PROJECT

- The project sponsor would require the contractor to sprinkle demolition sites with water regularly during excavation and construction activity; sprinkle unpaved construction areas with water at least twice per day; cover stockpiles of soil, sand and other material; cover trucks hauling debris, soils, sand or other such material; and sweep surrounding streets during excavation and construction at least once per day to reduce PM_{10} emissions. The project sponsor would require the project contractor to maintain and operate construction equipment so as to minimize exhaust emissions of PM_{10} and other pollutants, by such means as a prohibition on idling of motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions for equipment that would be in frequent use for much of the construction period.

- Reclamined water would be obtained from the San Francisco Clean Water Department for use at the project site for construction activities, as required under City of San Francisco Ordinance No. 175-91.

NOISE

MEASURES PROPOSED AS PART OF THE PROJECT

- The construction contract would require that the project contractor muffle and shield intakes and exhausts, shroud or shield impact tools, and use electric-powered rather than diesel-powered construction equipment, as feasible, so that noise would not exceed limits stated in the City's Noise Ordinance (Article 29, San Francisco Administrative Code, 1972).

- The project sponsor would require that the project contractor predrill holes (if feasible based on soils) for piles to the maximum feasible depth to minimize noise and vibration from pile driving. The actual pounding from pile driving would occur during a five- to eight-minute span per pile.

- The project sponsor would consult the with the Department of Public Works to determine the time when pile driving would cause the least disturbance to neighboring uses. The project sponsor would require that the construction contractor limit pile driving activity to result in least disturbance. This could require a work permit from the Director of Public Works pursuant to San Francisco Noise Ordinance Section 2908, if pile driving during daytime hours is determined to be less disruptive to neighboring uses.

- The project sponsor would require the general contractor to construct barriers around the site, and around stationary equipment such as compressors, which would reduce construction noise by as much as five dBA, and to locate stationary equipment in pit areas or excavated areas, as these areas would serve as noise barriers.

GEOLOGY/TOPOGRAPHY/HYDROLOGY

MEASURES PROPOSED AS PART OF THE PROJECT

*• A geotechnical investigation would be made for the project, and a detailed geotechnical report would be prepared by a California-licensed geotechnical engineer prior to commencement of construction. The project sponsor and contractor would follow the recommendations of the final report regarding any excavation and construction for the project.

*• As the residential project would include dewatering, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.

- As dewatering would be necessary, the final soils report would address the potential settlement and subsidence impacts of dewatering. The soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require that a Special Inspector (as defined in Section 306 of the San Francisco Building Code) be retained by the project sponsor to perform this monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be used to halt the subsidence. The project sponsor would delay construction if necessary. Any cost for the survey and any necessary repairs to service under the street would be borne by the project sponsor.

- The final soils report would recommend whether or not watering of piles of adjacent structures would be necessary. If it were found to be necessary to water adjacent piles, the project sponsor would ensure that the general contractor complied with recommendations of the soils report.

*• The project sponsor would require the general contractor to install and maintain sediment traps in local stormwater intakes during the construction period to reduce the amount of sediment entering the storm drain/sewer lines, if this is found necessary by the Industrial Waste Division of the Department of Public Works.

- During dewatering of the residential tower site, the groundwater level in the site vicinity would be monitored. If lowering of the groundwater level in the site vicinity were to threaten wooden pile foundations, groundwater recharge would be used to stabilize the groundwater level.

WATER QUALITY

MEASURE PROPOSED AS PART OF THE PROJECT

*• See the second and fifth measures under Geology/Topography/Hydrology, above, for mitigation proposed to prevent sediment from entering storm sewers.

NOTE - Mitigation Measures

/1/ National Institute for Occupational Safety and Health, *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, U.S. Department of Health and Human Services, DHHS Publication No. 85-115, October, 1985.

VII. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

In accordance with Section 21067 of the California Environmental Quality Act (CEQA), and with Section 15040, 15081 and 15082 of the State CEQA Guidelines, the purpose of this chapter is to identify impacts that could not be eliminated or reduced to an insignificant level by mitigation measures included as part of the proposed project, or by other mitigation measures that could be implemented, as described in Chapter VI, Mitigation Measures, pp. 170 to 176.

The findings of significant impacts are subject to final determination by the City Planning Commission as part of its certification process for the EIR. This chapter in the Final EIR will be revised, if necessary, to reflect the City Planning Commission's findings.

Cumulative development in downtown San Francisco would have a significant effect on the environment in that it would generate cumulative traffic increases as well as cumulative passenger loadings on MUNI, BART and other regional transit carriers. These cumulative transportation impacts could cause violations of the fine particulate matter standards (PM_{10}) in San Francisco with concomitant health effects. The proposed project, as primarily residential development in close proximity to San Francisco's downtown employment centers, could provide for an alternative means of work-trip commuting to the automobile. The project's net contribution to regional automobile commuter travel would be minimal, if any, and therefore would not be considered significant.

The project (if occupied) would increase the population on the site above existing conditions, that would be subject to substantial danger during a major earthquake. Although the new residential tower would meet the most current building and seismic engineering requirements of the *San Francisco Building Code*, greater concentrations of people would be susceptible to injury. Such population also would contribute to congestion which, along with the debris in the streets, would impede the access of emergency services responding to fire and other earthquake-related emergencies.

VIII. ALTERNATIVES TO THE PROPOSED PROJECT

This chapter identifies alternatives to the proposed project, discusses environmental impacts associated with these alternatives, and gives the reasons the alternatives were rejected in favor of the project. Regardless of the sponsor's reasons for rejection, the City Planning Commission could approve an alternative instead of the proposed project if the Commission believed the alternative would be more appropriate for the site.

Alternative site analysis was not conducted for this EIR. Between 1979 and 1985, the City of San Francisco engaged in a lengthy planning and environmental review process to evaluate and promulgate new controls for development in the C-3 districts. Adoption of the *Downtown Plan* by the Commission in 1984 and of the implementing zoning ordinance by the Board of Supervisors in 1985 represented a fine-tuned effort to control and direct high-density growth so as to preserve the downtown as a vital commercial and retail center and to enhance the economic vitality of the City as well as to balance the environmental needs of the City as a whole. As part of that effort, the Board of Supervisors, through legislation, adopted a package of mitigation measures that would address the cumulative effects of downtown growth, including impacts on housing, transportation, open space, child care, and preservation of architecturally significant buildings.

The project site, within the C-3 District, allows for high-density residential development within the downtown. Only other C-3 District locations or Rincon Hill would allow for comparable-scale residential development to the proposed project, within or adjacent to San Francisco's downtown employment centers. Locating the residential building proposed for the project site at another C-3 District location or in the Rincon Hill area would not eliminate the main impacts of this project. There are no sites within the Downtown where this project would not contribute to the cumulative impacts of high-intensity development. The EIR would find the same level of contribution to the cumulative impacts irrespective of any other Downtown location in which the project site may be located.

A. ALTERNATIVE A: NO PROJECT

DESCRIPTION

This alternative would entail no change to the site. The proposed project would not be built. The existing attendant-controlled surface parking on the residential tower site and private parking on the office and retail building site would be retained.

IMPACTS

If the No-Project Alternative were implemented, none of the impacts associated with the project would occur. The environmental characteristics of this alternative would be generally as described in the Environmental Setting sections of this report (see Chapter IV, Environmental Setting, pp. 40 to 76, for a discussion of existing conditions). Transportation, noise and air quality impacts associated with construction of the project would not occur. Future transportation and air quality conditions (as described in Chapter V, Environmental Impacts, pp. 127 to 157) as base conditions with cumulative development, but without the project, would continue to exist around the site.

There would be no change in energy demand on the site. Employment on the site would not increase as it would with the project. Land uses, site views, shadows and winds would not change. This alternative would not contribute to cumulative impacts on transportation at local intersections or to additional air quality impacts. Potential sub-surface archaeological and cultural resources remaining on the project site would not be disturbed. Potentially hazardous substances would remain in sub-surface soils. This alternative would not contribute to growth inducement in areas surrounding the project site. There would be no new housing units or new residents at the residential tower site. This alternative would preserve the option to develop a similar or different type of building on the site in the future.

REASONS FOR REJECTION

This alternative was rejected by the project sponsor because it would not use the development potential of the site allowable under the *Downtown Plan*. In the sponsor's opinion, this alternative would not further policies of the *Downtown Plan* concerning location of high-density residential development in proximity to a concentration of employment.

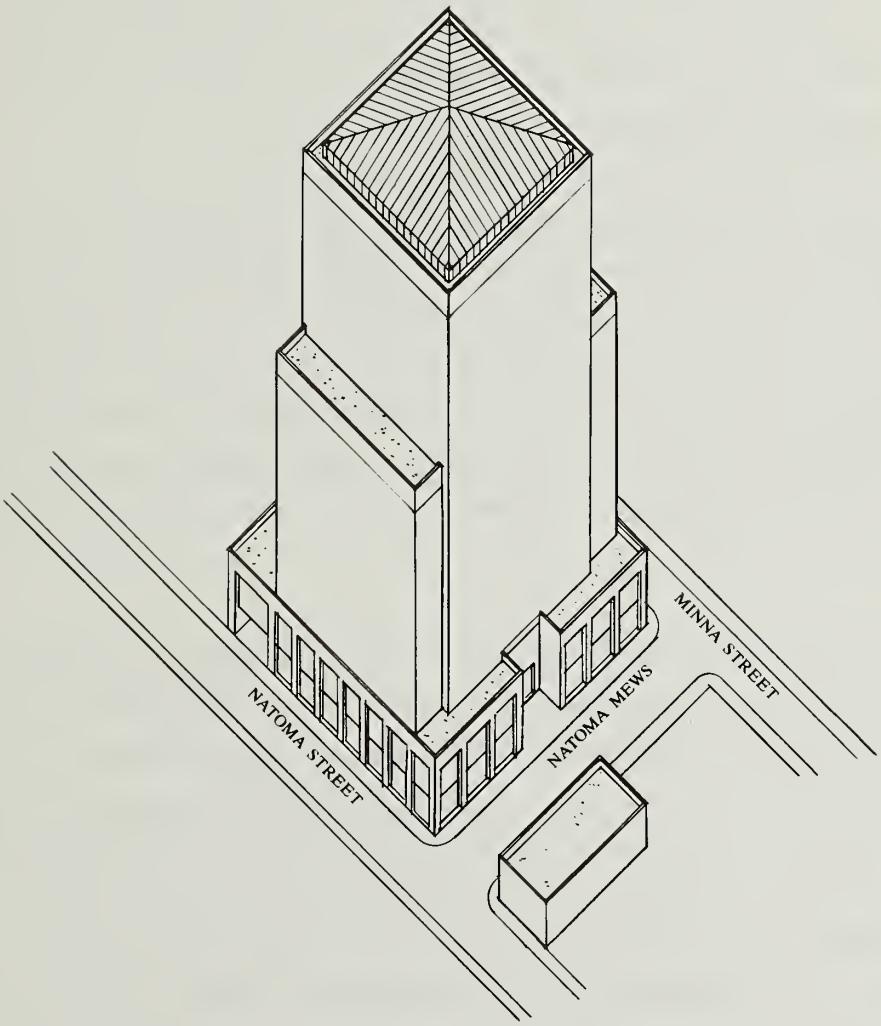
B. ALTERNATIVE B: NO TRANSFER OF DEVELOPMENT RIGHTS, 9:1 FAR

DESCRIPTION

The project as proposed would include the transfer of about 200,800 sq. ft. of development rights from as-yet unidentified sites. This alternative would include a residential and retail building without TDR, on the north side of Natoma Street. The FAR would be about 9:1, compared to about 15.1:1 for the project. This alternative residential building would contain a total of about 406,900 gsf of space, of which about 296,200 gsf would be applicable to the building's FAR. The remaining building area would consist of residential amenities (i.e., health club), the lobby and the parking garage. The office and retail building on the south side of Natoma Street would contain about 18,400 gsf of office space and about 3,230 gsf of retail space, as with the project.

The alternative residential building would be 26 stories tall (about 269 ft. including mechanical penthouse) as opposed to 49 stories (about 475 ft. including mechanical penthouse) for the project (see Figure 34, p. 181). Residential space would be about 281,200 sq. ft. (263 units), compared to about 444,400 sq. ft. (509 units) with the project. Average residential unit size would be larger with this alternative compared to the project. Total retail space on the residential site would be about 12,000 sq. ft., compared to about 10,010 sq. ft. with the project and health club space would be about 15,000 sq. ft. compared to the project's 11,080 sq. ft. as proposed. Parking area would be about 31,000 sq. ft. (99 spaces), as compared to about 140,250 sq. ft. (378 spaces) for the project. This alternative would provide the Code-required number of parking spaces compared to the project, which would provide more than the Code-defined accessory parking. All parking spaces provided with this alternative would be independently accessible (self-park), compared to 204 independently-accessible spaces out of a total of 378 spaces proposed with the project.

The open space requirement for this alternative would be about 10,445 sq. ft., about 9,470 sq. ft. of which would be required as private outdoor (balcony) space, which would be met in a manner similar to the project. Compared to the proposed project, this alternative would not require exceptions to the Planning Code for upper-level exterior setbacks from the Minna Street, and would not require Conditional Use



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SOURCE: Heller and Leake

Natoma Mews ■

Figure 34
Alternative B: No Transfer of Development Rights, 9:1 FAR

Authorization for parking in excess of accessory parking amounts as defined by the City Planning Code centerline and for dwelling unit density in the C-3 District. As with the proposed project, this alternative would provide the required number of freight-loading spaces.

IMPACTS

This alternative would be a 269-ft.-tall building. It would comply with all setback and bulk requirements. The alternative would be about 206 ft. shorter than the project, and therefore would be less visible in mid- and long-range views than would the project. This alternative would not require transfer of development rights and would therefore not provide for the preservation of an architecturally or historically significant building elsewhere in the C-3 district.

Shadow from this alternative would be less than with the project. This alternative would not add new shadow to the Pacific Gateway Building Plaza, compared to the project; this alternative would add new shadow to the 100 First Street Plaza in early afternoons from October through March, to the Golden Gate University entrance and seating area in late morning and early afternoon from October to February, and to the approved rooftop atrium at 101 Second Street in the morning from mid-March through September, as would the project. Wind effects would be generally similar to those of the project.

This alternative would cause wind speeds to exceed the pedestrian comfort criterion by two miles per hour, at one of the 20 locations tested (compared to no locations of the 20 locations tested with the project), and would exceed the comfort criterion for outdoor seating at one of the two locations tested for which it applies (compared to neither of the two locations tested with the project). While shorter buildings typically affect pedestrian-level winds less than do taller buildings, this alternative would generally not result in less ground-level wind effects than the project because the broad massing of the alternative would create higher speed ground-level winds.

Travel demand, air quality and energy impacts associated with operation of on-site uses would be about 16 percent less than those of the proposed project because of fewer residential units. This alternative would have 279 fewer parking spaces, and a

total parking demand for 247 fewer spaces, than with the project, which would result in less traffic and fewer air quality effects at local intersections than with the project. Intersection service levels during the p.m. peak hour would be the same as the project. Table 11 on p. 191 provides a summary comparison of transportation impacts of the proposed project to the alternatives. Construction noise impacts would be of a shorter duration, as the construction period would be shorter. Construction air quality effects would similarly be less with this alternative. The potential during construction for encountering subsurface hazardous materials would be less than with the project, as the depth of excavation would be about 18 feet less without basement levels compared to three basement levels with the project. Similarly, any effects on cultural resources would be less with this alternative.

This alternative would provide employment for about 144 employees, compared to 139 employees with the project because of the larger health club and retail space on the residential tower site with this alternative. It would generate a demand for about seven new dwelling units in San Francisco, based on the OAHPP Formula, the same as the project. This alternative would contribute 256 units to the housing stock in San Francisco, compared to 502 units with the project, after subtracting housing demand generated. Growth-inducing impacts of this alternative would be similar to those for the project, but of a smaller magnitude.

REASONS FOR REJECTION

The project sponsor has rejected this alternative because, in the sponsor's opinion, it would not provide for the full use of the development potential permitted under the *City Planning Code*, and would not meet stated policies of the *Downtown Plan* to redirect growth to the South of Market, and to situate major new development in close proximity to transit centers. *The Downtown Plan* designates the general area, south of the Transbay Terminal, for the highest development potential in the South of Market C-3 districts. Compared to the project, this alternative would add 246 fewer units to the housing stock. In the project sponsors opinion, therefore, this alternative would not meet the stated policies of the San Francisco Master Plan to increase the supply of housing, to the extent of the proposed project.

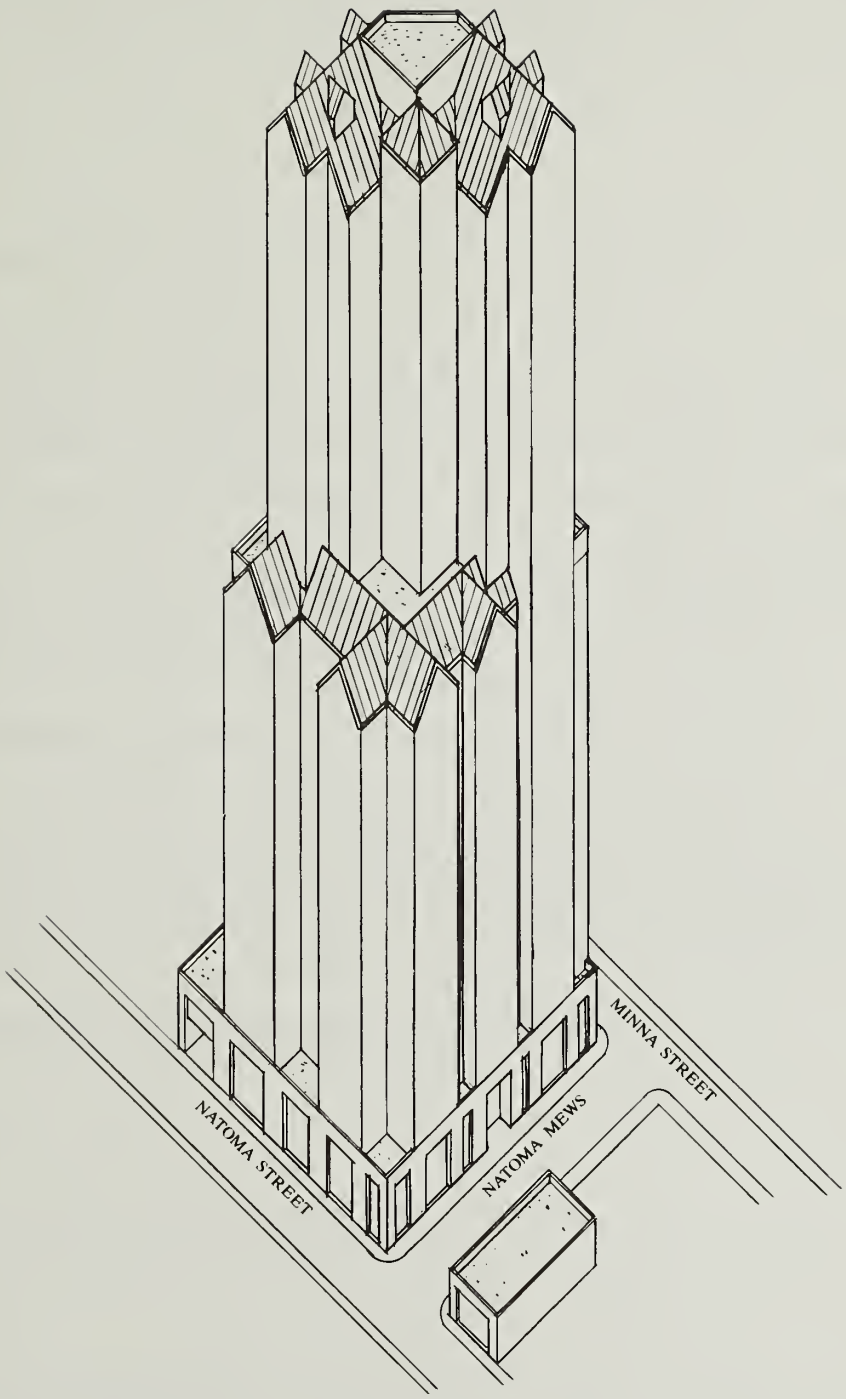
C. ALTERNATIVE C: 18:1 FAR

DESCRIPTION

This alternative considers a residential and retail building on the north side of Natoma Street using 296,235 sq. ft. of TDR from as-yet unidentified sites, compared to 200,800 sq. ft. of TDR with the project. The FAR for this alternative would be the maximum allowable FAR for the site of 18:1, compared to a proposed FAR of about 15.1:1 for the project. The residential building of this alternative would contain a total of about 686,760 gsf of space of which about 592,470 gsf would be applicable to the buildings' FAR. As with the project, a six-story building with about 18,400 sq. ft. of office space and about 3,230 sq. ft. of retail space would be built on the south side of Natoma Street.

The alternative residential building would be 45 stories tall (about 475 ft. including mechanical penthouse) compared to 49 stories (about 475 ft. including mechnical penthouse) for the project (see Figure 35, p. 185). Residential space would be about 522,150 gsf, with 582 units, compared to about 444,400 gsf and 509 units with the project (average unit size and floor to floor height would be slightly larger with this alternative than with the project). Total retail space on the residential site would be about 12,000 gsf, compared to about 10,010 gsf with the project. This alternative would have a health club of about 16,740 gsf compared to the 11,080 gsf project health club. Parking space would be about 135,870 gsf (434 spaces) with this alternative compared to about 140,250 gsf (378 spaces). This alternative residential building would provide 146 self-park spaces and 288 valet-operated parking spaces. The alternative would require Conditional Use Authorization for parking in excess of the amount of parking defined as accessory under the Planning Code (227 spaces), as would the proposed project.

The open space requirement for this alternative would be about 22,875 sq. ft., of which about 20,950 sq. ft. would be required as private outdoor (balcony) space, and would be met in private open space compared to provision of common usable open space for some of the requirement with the project. This alternative would require exceptions to the Planning Code for upper-level exterior setbacks from the Minna Street centerline, and would require Conditional Use Authorization for dwelling unit



SOURCE: Heller and Leake

Natoma Mews ■

Figure 35
Alternative C: Maximum Transfer of Development Rights, 18:1 FAR

density in the C-3 District as would the project. This alternative would also require an exception to the lower bulk limits (length and diagonal dimension) and would require an exception to the upper tower bulk limit for length dimension, which the proposed residential tower with the project would not require.

IMPACTS

This alternative residential building would be bulkier than the project residential building, and therefore shadows from this alternative would be greater compared to the project. This alternative would shade a greater area of the Pacific Gateway Plaza at 3:00 p.m. on December 21st. A greater area of the 100 First Street Plaza and the Five Fremont Plaza would be shaded on December 21st (at 12:45 p.m.) with this alternative. As with the proposed project, this alternative would add new shadow (although over a greater area than would the project) to the 100 First Street Plaza in early afternoons from October through March, would add new shadow to the Golden Gate University seating area in late morning and early afternoon from October to February, would add new shadow to Pacific Gateway Plaza and Five Fremont Plaza in December and would add new shadow to the rooftop atrium open space at the approved 101 Second Street building in the morning from mid-March through September. As with the proposed project, shadow cast by the residential tower of this alternative would theoretically reach St. Marys Square one hour after sunrise between December 3 and January 8. However, compared to the proposed project the duration of theoretical shadow on St. Mary's Square would be longer, because of the greater bulk of this alternative building. However, existing intervening buildings would block shadows extending from the site toward St. Mary's Square. Wind effects would be greater than with the project. This alternative would cause wind speeds to exceed the pedestrian comfort criterion at five of the 20 locations tested (compared to none of the tested locations with the project), and would exceed the comfort criterion for outdoor seating at one of the two locations for which it applies (compared to neither of the locations tested with the project).

Travel demand and energy impacts associated with on-site uses would be about seven percent greater than those of the proposed project because of the larger number of residential units. This alternative would have 56 more parking spaces, and a total parking demand for 72 more spaces, than with the project and would result in more traffic and greater air quality effects at local intersections in the immediate project

area than with the project. Intersection service levels during the p.m. peak hour would be the same as with the project. Table 11 on p. 191 provides a summary comparison of transportation impacts of the proposed project to the alternatives. Construction noise and air quality impacts would be of a longer duration, as the construction period would be longer for this alternative. Effects on cultural resources would be the same as with the project, as the depth of excavation would be the same as with the project. The potential for encountering sub-surface hazardous materials during construction would be the same as with the project.

This alternative would provide employment for about 150 employees, compared to about 139 employees with the project. It would generate a demand for about seven new dwelling units in San Francisco, based on the OAHPP Formula, as would the project. This alternative would contribute 575 units to the housing stock in San Francisco, compared to 502 units provided with the project, after subtracting housing demand generated. Growth-inducing impacts of this alternative would be similar to those for the project, but of a greater magnitude.

REASONS FOR REJECTION

The project sponsor has rejected this alternative because in their opinion, it would result in an unattractive building form, would become increasingly inefficient at upper floors, and would result in greater overall impacts than would the proposed project.

D. ALTERNATIVE D: OFFICE AND RETAIL USES

DESCRIPTION

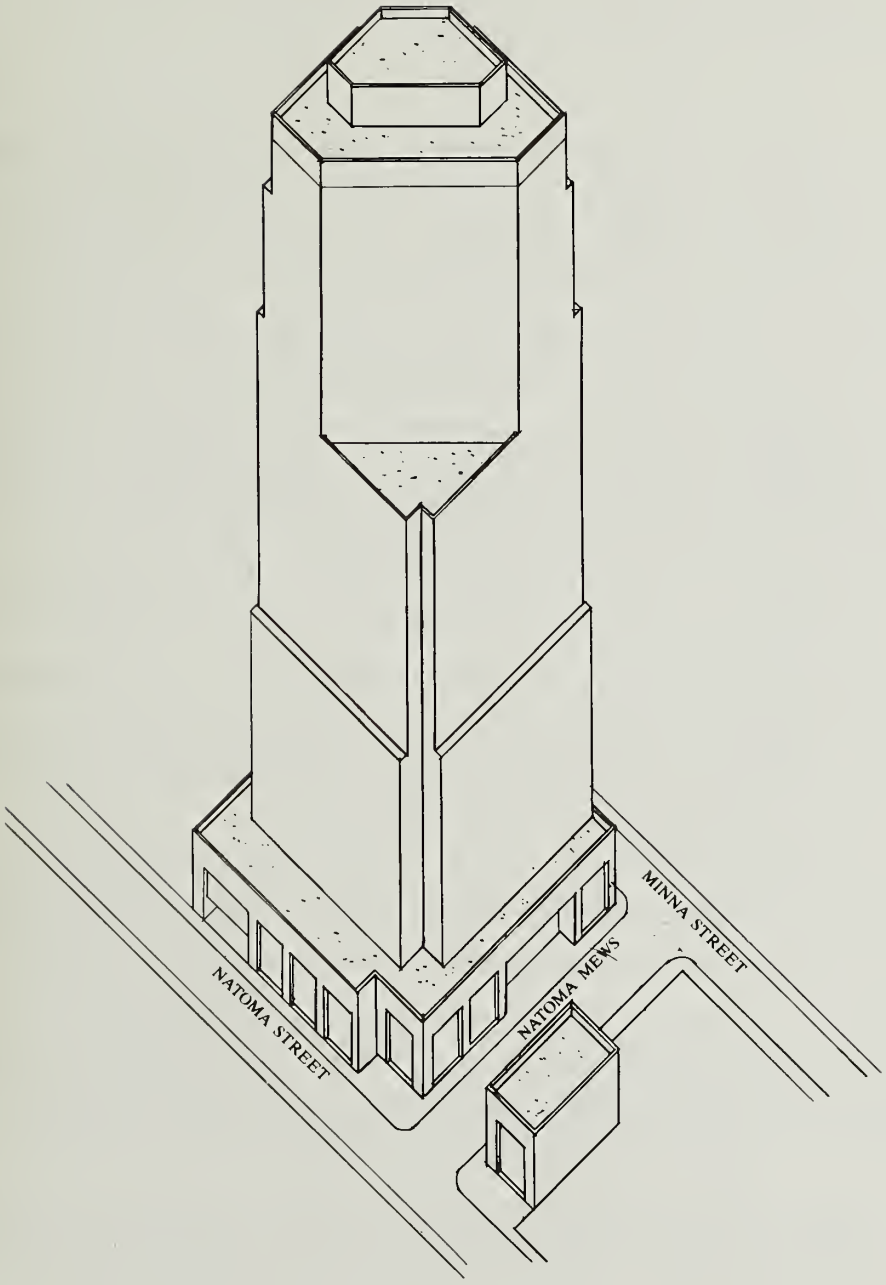
This alternative would develop an office and retail building on the north side of Natoma Street, the residential building site of the proposed project. The residential project as proposed would include the transfer of about 200,800 sq. ft. of development rights from as-yet unidentified sites. This alternative considers a building requiring 217,315 sq. ft. of TDR. The office and retail building on the north side of Natoma Street, with this alternative, would contain a total of about 604,450 gsf of space, of which about 513,550 gsf would be applicable to FAR. The FAR of this alternative would be about 15.6, compared to about 15.1:1 for the project.

The alternative building on the north side of Natoma Street would be 35 stories tall (about 475 ft.), compared to 49 stories tall (about 475 ft.) with the residential building of the project (see Figure 36, p. 189), and would contain about 441,400 gsf of office space. The taller floor-to-floor height necessitated for office floors, due to greater ceiling space requirements for ventilation and lighting equipment, would result in a comparable building height, fewer building floors and less building floor area with this alternative compared to the project. Total retail space in the alternative building would be about 12,000 gsf, compared to about 10,010 gsf with the project. No residential space would be included, compared to about 444,400 gsf for the project. Parking under this alternative would be about 140,250 gsf (652 tandem valet parking spaces), compared to 140,250 gsf (378 spaces of which 174 would be valet operated) with the project. As with the project, the site on the south side of Natoma Street would contain a six-story building with about 3,230 gsf of retail space and about 18,400 gsf of office space.

The open space requirement for this alternative would be about 12,310 sq. ft., which would be met in a ground-floor atrium and fourth-floor outdoor deck accessible to the public. This alternative would require an exception to the City Planning Code for upper level exterior setbacks from the centerline of Minna Street, as would the project but would not require Conditional Use Authorization for dwelling unit density in the C-3 District, which the project would require. This alternative would require a Conditional Use Authorization for parking in excess of accessory parking.

IMPACTS

This alternative would have the same visibility in mid- and long-range views as the project. Shadows from this alternative would be essentially the same as with the project. Shadow cast by the office and retail tower of this alternative would theoretically reach St. Mary's Square one hour after sunrise between December 3 and January 8, but would be blocked by existing intervening buildings as with the project. As with the proposed project, this alternative building would add new shadow to the 100 First Street Plaza in early afternoons from October through March, would add new shadow to the Golden Gate University seating area in late mornings and early afternoons from October to February, would add new shadow to Pacific Gateway Plaza in December and would add new shadow to the rooftop atrium open space at the



SOURCE: Heller and Leake

Natoma Mews ■

Figure 36
Alternative D: Office and Retail Building, 15.6:1 FAR

approved 101 Second Street building in the morning from mid-March through September. Wind effects would be essentially the same as with the project. The alternative would result in winds exceeding the pedestrian comfort criteria at none of the 22 locations tested, as with the project, and exceeding the comfort criterion for outdoor seating at one of the two locations tested (as compared to neither of the locations tested with the project).

Travel demand, air quality and energy impacts associated with this alternative would be about 38 percent greater than those of the proposed project because office uses generate more trips than residential uses for the same floor area. Traffic, transit and air quality effects on the whole would be substantially greater than with the project because in addition to the greater amount of travel demand that would be generated by this alternative, the majority of the p.m. peak-period trips would be outbound from the project site, thus adding to the existing and projected congestion in this predominant commute direction. This compares to the project's residential travel demand which would be primarily inbound during the p.m. peak period, in the less congested counter-commute direction. The proposed project would also have a large component of pedestrian trips, as the project residents would walk to work in the Downtown. Under the current road network (i.e., Mission Street ramps closed), the p.m. peak-hour v/c ratio at local intersections would be 0.01 to 0.03 higher than with the project. Levels of service, however, would be the same. This alternative would have 274 more parking spaces, and a total parking demand for 280 fewer spaces, than with the project. There would be excess parking capacity of about 246 equivalent daily spaces. The provision for more parking spaces on-site would generate more traffic and greater air quality effects at local intersections than with the project. Table 11 on p. 191 provides a summary comparison of transportation impacts of the proposed project to the alternatives. Construction noise and air quality impacts would be about the same as with the project, as the construction period would be about the same duration.

Effects on cultural resources would also be the same as with the project, as the depth of excavation would be the same. The potential during construction for encountering sub-surface hazardous materials would be about the same with this alternative as with the project. This alternative would provide employment for about 1,810 employees, compared to about 139 employees with the project. This alternative would generate a

TABLE 11: SUMMARY AND COMPARISON OF TRANSPORTATION IMPACTS OF PROJECT AND ALTERNATIVES B, C, AND D

	Project	Alt. B	Alt. C	Alt. D
Travel Demand				
Daily PTE /a/	7,310	6,120	7,850	11,090
P.M. Peak-Hour PTE				
Total	750	630	810	1,130
Outbound /b/	210	200	220	960
Intersection LOS (V/C) /c,d/				
Second / Howard Sts.	C (0.76)	C (0.76)	C (0.76)	C (0.79)
First / Howard Sts.	E/F (/e/)	E/F (/e/)	E/F (/e/)	E/F (/e/)
First / Mission Sts.	D (0.88)	D (0.88)	D (0.88)	D (0.89)
Second / Mission Sts.	D (0.86)	D (0.86)	D (0.86)	D (0.88)
Parking Demand	536	289	608	256
Parking Supply	378	99	434	652
Total Unmet Parking Demand	280	340	324	-246

/a/ PTE = person trip ends
/b/ Outbound p.m. peak-hour trips are trips traveling in the peak commute direction, leaving Downtown.
/c/ Existing plus project scenario
/d/ LOS = level of service
V/C = volume-to-capacity ratio
/e/ Intersection flow is obstructed by congestion and backups on First Street from Bay Bridge on-ramp at Harrison Street, and a V/C ratio cannot be appropriately calculated. The LOS is due to congestion of the downstream street network, not the V/C ratio at the First Street / Howard Street intersection.

SOURCE: Environmental Science Associates, Inc.; and Heller and Leake

net demand for about 177 new dwelling units in San Francisco, based on the OAHPP Formula; compared to a demand of seven new dwelling units and provision of 509 new units with the project. Growth-inducing impacts of this alternative would be greater than those of the project, due to the greater number of people at the site than with the project.

REASONS FOR REJECTION

The project sponsor has rejected this alternative because in their opinion, high-density residential uses at the site with the project would meet a demand for such space adjacent to an emerging concentration of employment, while new high-density office uses at the site would add to a potential oversupply of space in the site vicinity.

FEDERAL AND STATE AGENCIES

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California Department of Transportation
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3721/047, 079, 052
Patrick & Company
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3721/075
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3721/069
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3721/06, 3721/15A, 3721/027
California Department of Transportation
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Attn: Mr. William Chastain

3721/021
Richard J. Lautze, Trustee
580 Howard Street
San Francisco, CA 94105

3721/ 28, 29
William U. Beck
Estate of Violet M. Beck
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San Francisco, CA 94105

3721-074
The Marchand Trust
c/o Dooley Anderson - J. Pardini
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2700 Nineteenth Street
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San Francisco Business Times
325 5th Street
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Attn: Tim Turner

San Francisco Chronicle
925 Mission Street
San Francisco, CA 94103
Attn: Ingfei Chen

San Francisco Examiner
P.O. Box 7260
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Attn: Gerald Adams

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San Francisco, CA 94115

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146 Leavenworth Street
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Attn: Rob Waters

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State and Local Documents Division
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Government Publications Department
San Francisco State University
1630 Holloway Avenue
San Francisco, CA 94132

Hastings College of the Law - Library
200 McAllister Street
San Francisco, CA 94102-4978

Institute of Government Studies
109 Moses Hall
University of California
Berkeley, CA 94720

X. APPENDICES

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NOTICE THAT AN ENVIRONMENTAL IMPACT REPORT IS DETERMINED TO BE REQUIRED

Date of this Notice: February 28, 1991

Lead Agency: City and County of San Francisco, Department of City Planning
450 McAllister Street, 6th Floor, San Francisco, CA 94102

Agency Contact Person: Jim McCormick **Telephone:** (415) 558-6394

Project Title: 90.109E: Natoma Mews
Project Sponsor: PCI Developments Corp.
Contact Person: Christopher Philps

Project Address: 72-82 Natoma Street northside through the block to Minna Street and 71 Natoma Street, between Transbay Terminal and Second Street
Assessor's Block and Lots: Block 3721, Lots 31, 45A, 46, 53, 54
City and County: San Francisco

Project Description: Construction of a 475-foot tall, 45-story residential building containing a total of about 624,400 gross square feet (gsf) of floor area. The project would contain a total of about 444,400 gsf of residential space on a podium level (beginning at the fourth floor above ground level) through 45th floor, yielding 516 residential units. The proposed building would also contain about 140,250 gsf of parking located on three subsurface levels and two levels above the ground floor; with a total of 448 parking spaces. The ground floor of the building would contain about 21,400 gsf of commercial space, and public open space along a proposed pedestrian passageway connecting Natoma and Minna Streets. The proposed residential project would replace an existing 134-space parking lot. The project would also include a six-story building containing a total of about 22,700 gsf of floor area, on a vacant site (Lot 31) across Natoma Street from the residential building site. The six-story building would contain about 4,300 gsf of ground-floor retail space and about 18,400 gsf of office space on the second through sixth levels.

THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED. This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and the following reasons, as documented in the Environmental Evaluation (Initial Study) for the project, which is attached.

Deadline for Filing an Appeal of this Determination to the City Planning Commission: March 10, 1991.

An appeal requires: 1) a letter specifying the grounds for appeal, and;
2) a $75.00 filing fee.

Barbara W. Sahm

BARBARA W. SAHM, Environmental Review Officer

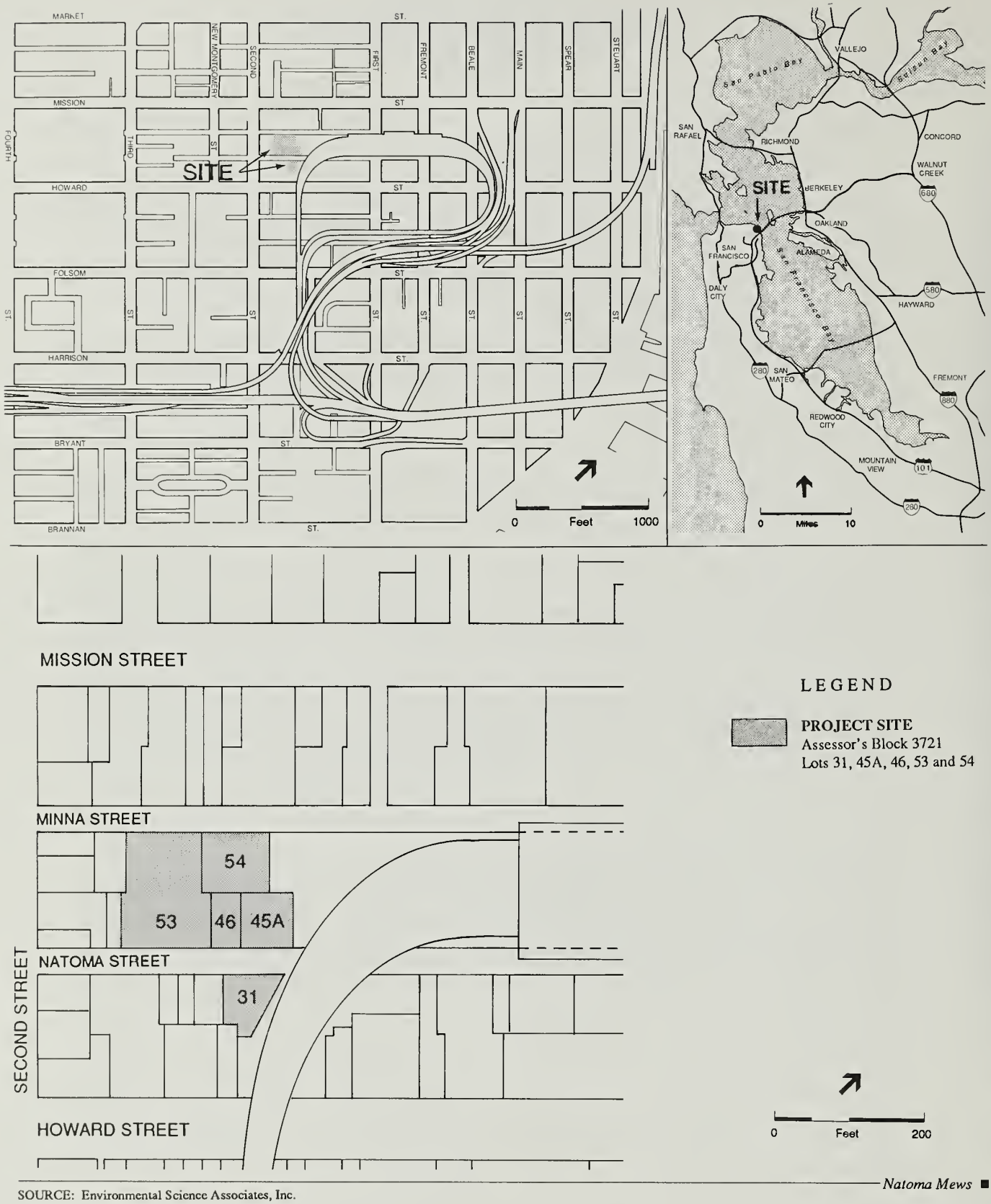
ER5 6/85

NATOMA MEWS
INITIAL STUDY
90.109E

I. PROJECT DESCRIPTION

The proposed project site would consist of two sites separated by Natoma Street, between First and Second Streets. Site A is mid-block on the north side of Natoma Street between First and Second Streets, Lots 45A, 46, 53 and 54 of Assessor's Block 3721, and would contain the proposed residential building. Site B is mid-block on the south side of Natoma Street, Lot 31 of assessor's Block 3721, directly across from Site A (See Figure 1). Site A is located adjacent to the west of the Transbay Transit Terminal, one and one-half blocks south of Market Street and three blocks north of the James Lick Freeway (I-80). The 32,915 square foot (sq. ft.) Site A is currently developed with an attendant-controlled surface parking lot with tandem parking for approximately 134 vehicles. The 4,580 sq. ft. Site B is currently vacant.

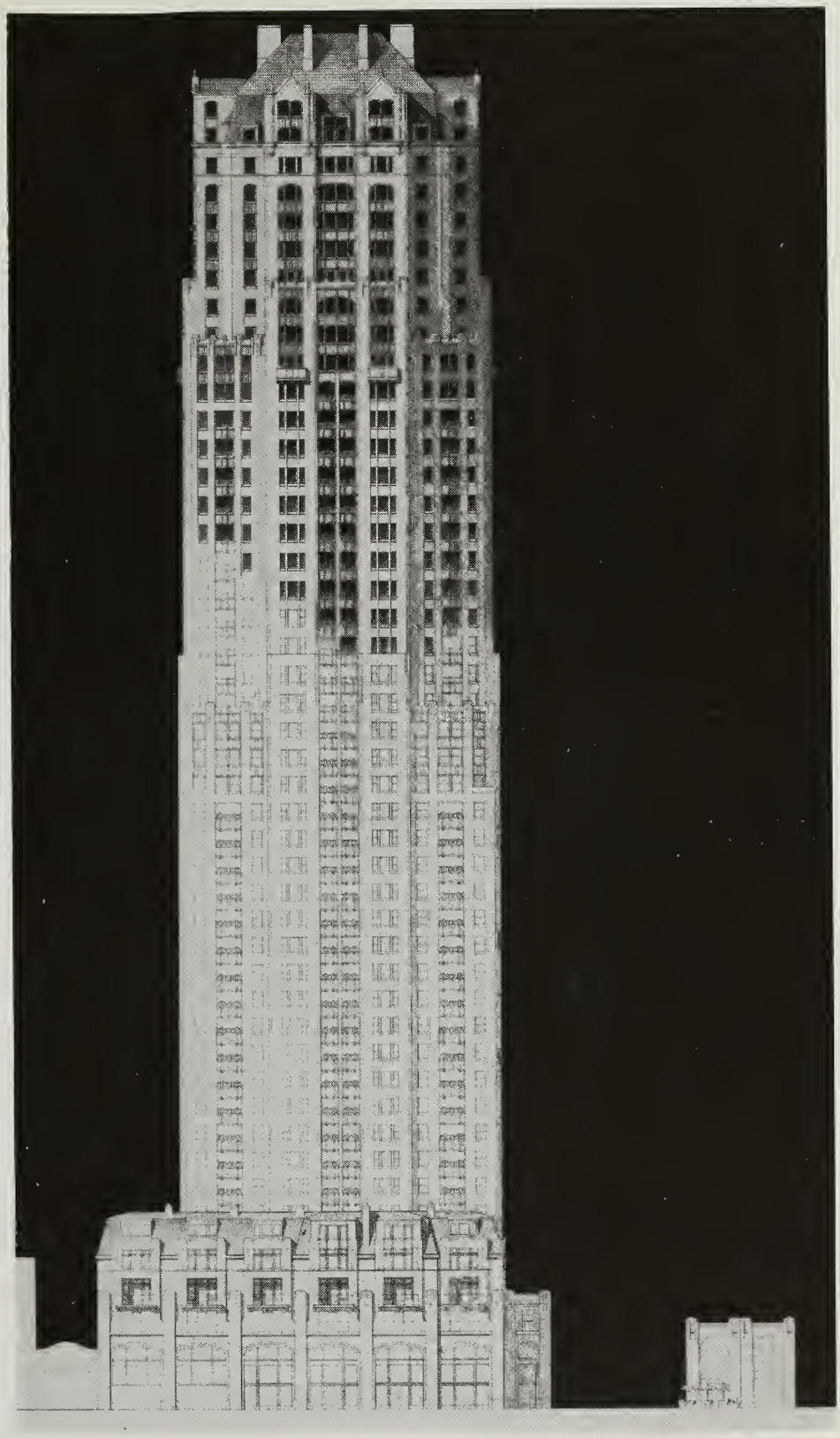
The proposed Natoma Mews project on Site A would be a 45-story, approximately 475-foot tall residential building containing a total of about 444,400 gross square feet (gsf) of residential floor area, with 516 residential units (see Figure 2). The proposed building would also contain about 140,250 gsf of parking, for a total of 584,650 gsf. Three subsurface parking levels would provide 194 non-valet (self-park) parking spaces and a total of 80 valet parking spaces. Two above ground levels (second and third building levels between the ground floor and podium level) would provide 174 valet parking spaces. A total of 448 parking spaces would be provided, which would result in an increase of about 314 parking spaces on the site; the area devoted to parking would increase by approximately 107,300 gsf. One freight loading space and two van loading spaces are proposed for the ground floor. The ground floor of the building on Site A would contain about 21,400 gsf of retail space and about 9,900 gsf of public open space. The public open space would be located around the perimeter of the building and along a proposed pedestrian passageway connecting Natoma and Minna Streets. The podium level (above the third building level) would contain about 8,000 gsf of private open space between the townhouse units and the main residential building, and would provide entrances to all of twelve proposed townhouse units and an 11,100 gsf health club for project residents.



SOURCE: Environmental Science Associates, Inc.

Natoma Mews ■

Figure 1
Project Location



0 Feet 100

Natoma Mews ■

SOURCE: Heller and Leake

Figure 2
Natoma Street Elevation

The main building entrance for pedestrians would be from the ground-level pedestrian walkway between Natoma and Minna Streets. The entrance to parking levels (valet and self-park spaces) and access to freight loading spaces would be from Natoma Street; the exit from parking would be on Minna Street. The project would result in an increase of 314 parking spaces on the site. All other uses would be new uses on the site.

The project would contain a total of 444,400 gsf of residential space on the podium level through the 45th floor, for 516 residential units. The residential units would range in size from about 455 square feet for the smallest studio units up to about 1,190 square feet for the largest two-bedroom units. Three-bedroom units, of over 1,200 sq. ft. each, would be provided as townhouses; at the 39th through 43rd floors; and as two-story penthouse units (44th and 45th floors). Thirty residential units would be set aside for rental by households earning 80% of the median household income in San Francisco, and the other 486 units would be rented at market rates. A 5,600 gsf mechanical penthouse would be located above the residential penthouse levels.

Site A is in the C-3-0 (Downtown Office) Use District and 500-S and 550-S Height and Bulk Districts. The basic permitted floor area ratio (FAR) is 9:1 and the maximum allowable FAR, including transferable development rights (TDR) is 18:1. The FAR of the residential project would be about 15.01:1, and would require approximately 197,845 sq. ft. of TDR. The FAR calculation for the residential project includes about 441,310 sq. ft. of residential space (about 3,090 sq. ft. subtracted from 444,400 gsf for mechanical space on each tower floor), about 11,010 sq. ft. of building area for the health club, about 560 sq. ft. of open space at the podium level (which provides entry to the townhouse units), and about 41,200 gsf of parking floor area applicable to the FAR as calculated under the City Planning Code.

Site B is in the C-3-O (SD) (Downtown Office Special Development) Use District and 450-S Height and Bulk District. The basic permitted FAR is 6:1 and the maximum allowable FAR, including TDR, is 18:1. The FAR of the project proposed for Site B would be about 4.12:1.

Project construction would take about 24 months; total construction cost would be about $40,000,000 (1990 dollars). The project sponsor is the PCI Developments Corporation; the project architect is Heller & Leake.

II. INTRODUCTION

The cumulative impacts of growth in the C-3 districts were analyzed in the Downtown Plan EIR (Final EIR certified October 18, 1984, Case No. EE81.3) and updated in the Mission Bay (Final EIR certified August 23, 1990, Case No. 86.505E) and South of Market Plan (Final EIR certified December 7, 1989, Case No. 85.463E) EIRs. Current information contained in these area-wide program EIRs will be summarized and incorporated by reference in the Natoma Mews project EIR as appropriate, pursuant to CEQA Sections 21061 and 21100 (see also State Guidelines Section 15150). The above-noted EIRs are available for review at the Office of Environmental Review, 450 McAllister Street, San Francisco; the San Francisco Main Library, and various branch libraries.

The Mission Bay EIR covers the impacts of potential development in a 300-acre area just south of the greater downtown, from Townsend Street to Mariposa Street, east of the I-280 freeway. The South of Market Plan EIR analyzes impacts of development under the proposed South of Market Plan development controls and alternatives in the area generally south of Mission Street to the Mission Bay planning area and east of U.S. 101 to the Rincon Hill area east of Second Street. The Downtown Plan EIR analyzes the impacts of various development policy alternatives in the C-3 (Downtown) zoning districts of San Francisco.

The Mission Bay and South of Market EIRs include the most current estimates of employment growth for the Downtown & Vicinity and for the rest of the City; revised analysis and conclusions regarding overall cumulative transportation impacts in the future; and new cumulative air quality information. (The term "Downtown & Vicinity" means the C-3 District and the areas around it: South of Market, Mission Bay, South Van Ness, Civic Center, and the Northeast Waterfront. See Mission Bay EIR, Vol. II, pp. IV.4-5). The Downtown Plan EIR contains other cumulative impact information regarding such topics as energy consumption, community services and seismic effects that also is applicable to the Natoma Mews project.

III. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

The Natoma Mews project is examined in this Initial Study to identify potential effects on the environment. The proposed project itself, or cumulatively with other projects in the

vicinity, might generate impacts that could be considered significant and those impacts will be analyzed in the Environmental Impact Report (EIR). They include: land use; construction noise; transportation; traffic-generated air quality effects; construction-generated particulate air quality effects; shadow; wind; toxics; cultural resources; and geology and seismicity. Other issues that will be included in the EIR for informational purposes are the relationship of the project to the Master Plan, including the Downtown Plan and the City Planning Code; urban design and visual quality; and employment and population.

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential impacts were determined either to be insignificant or to be mitigated through measures included in the project. As discussed in Section III.C starting on page 8, these items require no further environmental analysis in the EIR:

Glare: Mirrored glass would not be used. Bus drivers of vehicles entering or leaving the Transbay Terminal would not be exposed to glare from the building.

Housing: The project would provide a total of 516 new rental housing units in the Downtown. No substantial housing demand would be created.

Operational Noise: After completion, building operation and project-related traffic would not perceptibly increase noise levels in the site vicinity. Operational noise would be regulated by the San Francisco Noise Ordinance and the project would conform to the Noise Guidelines of the Environmental Protection Element of the Master Plan.

Construction Equipment Air Quality: Operation of project construction equipment would have short-term impacts on air quality in the site vicinity. Mitigation measures to reduce hydrocarbon emissions generated during operation of deisel-powered construction equipment for construction activities are included as part of the project (see mitigation measure on p. 27).

Utilities/Public Services: The proposed project would contribute to the cumulative demand for public utilities and services in the downtown. Such impacts anticipated from cumulative downtown development were analyzed in the Downtown Plan EIR and no significant impacts were identified.

Biology: The project site is completely developed; therefore, the project would not affect vegetation or wildlife.

Hydrology: Measures to mitigate potential impacts associated with excavation and dewatering are included as part of the project (see p. 28).

Water Quality: The site is completely covered by impervious surfaces; therefore, the project would not affect drainage patterns or water quality. See also the measures referenced above to mitigate the potential impacts of dewatering and excavation.

Energy/Natural Resources: The project would be designed to comply with performance standards of Title 24 of the California Administrative Code. Its annual energy budget would be about 767 million Btu of natural gas per month, and about 167,000 KWH of electricity per month. Peak natural gas use would coincide with PG&E's systemwide peak. Cumulative and indirect effects, including those of the project, are addressed in the EIR prepared for the Downtown Plan.

Hazards: The project would not create a health hazard. The project would have to comply with Section 12.202 (e) (1) of the San Francisco Fire Code which requires that all owners of high-rise buildings (over 75 feet) establish procedures to be followed in case of fire or other emergencies. Project construction would have to conform to the provisions of the Building and Fire Codes which require additional life-safety protections for high-rise (over 75 feet) buildings. This issue requires no further discussion in the EIR. As stated, the potential for encountering hazardous substances during project construction will be discussed in the EIR.

III. ENVIRONMENTAL EVALUATION CHECKLIST AND DISCUSSION

A. COMPATIBILITY WITH EXISTING ZONING AND PLANS	Not Applicable	Discussed
1) Discuss any variances, special authorizations, or changes proposed to the City Planning Code or zoning Map, if applicable.	___	X
* 2) Discuss any conflicts with any adopted environmental plans and goals of the City or Region, if applicable.	___	X

* Derived from State EIR Guidelines, Appendix G, normally significant effect

The proposed residential project would comply with the City Planning Code requirements concerning height, bulk and use in the C-3-0 Downtown Office District and the 500-S and 550-S Height and Bulk Districts in which the proposed Site A (residential) project would be located. The proposed Site B project would comply with the City Planning Code requirements concerning height, bulk and use in the C-3-O (SD) District and the 450-S Height and Bulk District in which it would be located. A Conditional Use (CU) Authorization would be required for parking in excess of 150% of the City Planning Code requirement for the project. The relationship of the proposed project to the policies of the Master Plan, including the Downtown Plan, and provisions of the City Planning Code, will be discussed in the EIR. The project would not conflict with other adopted plans and goals; however, issues related to compatibility with zoning and plans will be discussed in the EIR.

B. ENVIRONMENTAL EFFECTS

1) Land Use. Could the project:	Yes	No	Discussed
*(a) Disrupt or divide the physical arrangement of an established community?	___	X	X
*(b) Have any substantial impact upon the existing character of the vicinity?	X	___	X

The proposed project site is located south of Market Street, in the C-3-0 District covered in the Downtown Plan. Predominant land uses in the site vicinity are office, ground-floor retail, light manufacturing, surface parking and a regional mass transportation facility. The proposed project, containing residential uses, would introduce a new use to the project area. Land use and zoning issues will be discussed in the EIR.

2) Visual Quality. Could the project:	Yes	No	Discussed
*(a) Have a substantial, demonstrable negative aesthetic effect?	___	X	X
(b) Substantially degrade or obstruct any scenic view or vista now observed from public areas?	___	X	X
(c) Generate obtrusive light or glare substantially impacting other properties?	___	X	X

* Derived from State EIR Guidelines, Appendix G, normally significant effect

The project's appearance and possible effects on views will be discussed in the EIR. The project site is surrounded by one- to seven-story commercial buildings, which screen out potential glare pathways. The streets that border the project site, Natoma Street and Minna Street, are partially shaded by nearby buildings. The base of the Transbay Terminal ramp for outbound bus operation is oriented so that bus drivers would face directly perpendicular to the northeast side of the project before turning along the curved ramp, away from the northeast side of the building. For potential head-on glare effects on drivers of buses leaving the Transbay Terminal, the bearing angle of the sun would have to range between 125 to 145 degrees East of South (i.e., such that reflection would be directly in the driver's line-of-sight). However, the maximum solar bearing angle at the latitude and longitude of the project site is approximately 120 degrees at 5:48 PDT (at sunrise) on June 21, outside this range. Consequently, there are no solar bearing angles during the year that could produce reflections potentially hazardous to drivers of eastbound buses leaving the Transbay Terminal via the ramp. This issue will not be discussed in the EIR.

The EIR will discuss the proposed project's relationship to the urban design policies of the Downtown Plan and the objectives and policies of the Urban Design Element of the Master Plan.

3) Population. Could the project:	Yes	No	Discussed
*(a) Induce substantial growth or concentration of population?	__	X	X
*(b) Displace a large number of people (involving either housing or employment)?	__	X	X
(c) Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	__	X	X

The project would add 516 rental units to San Francisco's housing supply. Between about 775 persons and about 820 persons residing at the site would be added to the resident population of the project area./1/ The retail and office space would provide new jobs on the site. One attendant is currently employed at the existing parking lot on the project site. The project would displace this employee. The EIR will discuss employment and population effects of the project.

The proposed building on Site B would add less than 25,000 gsf of net new office space to the site, and would therefore not be required to comply with the Office Affordable

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

Housing Production Program (OAHPP), Ordinance No. 358-85. However, according to OAHPP formula, the project office space would generate a demand for about seven dwelling units./2/ The project residential development would add 509 dwelling units more than the demand for units generated by the office space. The project sponsor proposes to provide 30 units of housing affordable to households earning 80% of the median household income in San Francisco; therefore, no substantial housing demand would be created by the project. This issue will not be discussed in the EIR.

NOTES - Population

/1/ San Francisco Department of City Planning, Mission Bay Environmental Impact Report (EIR) 86.505E, Vol. II, Table VI.C.3. In Downtown & Vicinity the persons per household average was 1.5 in 1980 and 1.59 in 1985.

/2/ The OAHPP uses the following formula to compute the required number of housing units (San Francisco Planning Code Section 313.5(1):
Net Addition Gross Sq. Ft. Office Space X .000386 = Housing Units

4) Transportation/Circulation. Could the project:	Yes	No	Discussed
*(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?	X		X
*(b) Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	X		X
(c) Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?	X		X
(d) Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?	X		X

The addition of permanent residents to the site would increase demand on existing transportation systems. The number of pedestrians in the area would also increase. The project would increase the number of parking spaces on the site from 134 to about 448. Traffic would enter the proposed project's garage on Natoma Street and would exit on Minna Street, possibly affecting traffic on First Street (including the intersection at Natoma Street) and Second Street, both Transit Preferential Streets. Traffic generated by the proposed project could also have an effect on pedestrian circulation on Second Street, a Pedestrian Oriented Street. Localized transportation impacts of the project, including

* Derived from State EIR Guidelines, Appendix G, normally significant effect

transit and parking demand, will be analyzed in the EIR. Project effects on circulation during construction, including cumulative effects with other development approved or under construction in the South of Market, will be discussed in the EIR.

The potential effects of the three subsurface parking levels, proposed with the project, on the proposed alternatives for extension of CalTrain service to the Embarcadero will be analyzed in the EIR.

The EIR will discuss project-generated traffic increases and movement as they relate to the operation of the street and freeway network in the project vicinity, in particular, the I-80 and US 101 ramps in the vicinity. The EIR will also discuss traffic circulation in relation to the status of the Embarcadero Freeway) and its ramps.

The cumulative transportation effects of development in the C-3 districts, including the project, are analyzed in the Mission Bay and South of Market Plan EIRs. The cumulative analysis contained in these EIRs regarding transportation will be summarized in the Natoma Mews EIR, and the project's effects in relation to cumulative impacts will be discussed.

5) Noise. Could the project:	Yes	No	Discussed
*(a) Increase substantially the ambient noise levels for adjoining areas?	X	___	X
(b) Violate Title 24 Noise Insulation standards, if applicable?	___	X	X
(c) Be substantially impacted by existing noise levels?	___	X	X

Demolition, excavation, and building construction would temporarily increase noise in the site vicinity. The construction period would last about 24 months, with piledriving taking place during the evenings and weekends intermittently over a period of about four weeks. Project construction noise, including potential cumulative construction noise, and its possible effects on sensitive receptors will be addressed in the EIR.

The noise environment of the site, like all of downtown San Francisco, is dominated by vehicular traffic noise. The Downtown Plan EIR indicated a day-night average noise level (L_{dn}) of 71 dBA on Second Street near the site in 1984, and predicts no audible change for downtown noise levels though 1990./1,2/ The Environmental Protection Element of the

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

Master Plan contains guidelines for determining the compatibility of various land uses with different noise environments. For residential uses in a noise environment of 65 dBA or greater, the guidelines recommend a detailed analysis of noise reduction requirements and inclusion of noise insulation features in the building design. Title 24 of the California Code of Regulations establishes uniform noise insulation standards for residential projects (including hotels and motels). The proposed project would consist primarily of housing, so Title 24 Noise Standards would be applicable. The Bureau of Building Inspection would review the final building plans to insure that the building wall and floor/ceiling assemblies meet state standards regarding sound transmission.

Project operation would not result in perceptibly greater noise levels than those existing in the area. The amount of traffic generated by the project during any hour of the day, and cumulative traffic increases at the time of project completion, would cause traffic noise levels to increase by less than one dBA L_{dn}. The Downtown Plan EIR estimated an increase of one dBA Ldn between 1990 and 2000 in the site vicinity, due to background noise increases from cumulative traffic growth. To produce a noticeable increase in environmental noise, a doubling of existing traffic volume would be required; traffic increases of this magnitude would not occur with anticipated cumulative development including the project./3/

The project would be required to comply with the San Francisco Noise Ordinance, San Francisco Police Code Section 2909, "Fixed Source Noise Levels," which regulates mechanical equipment noise. The project site and surrounding area are within a C-3-0 district. In this district, the ordinance limits equipment noise levels at the property line to 70 dBA between 7 a.m. and 10 p.m. and 60 dBA between the hours of 10 p.m. and 7 a.m. During lulls in traffic, mechanical equipment generating 70 dBA could dominate the noise environment at the site. The project engineer and architect would include design features in the building to limit mechanical equipment noise levels to 60 dBA. As equipment noise would be limited to 60 dBA to meet the nighttime limit, it would not be perceptible above the ambient noise levels in the project area; operational noise requires no further analysis and will not be included in the EIR.

NOTES - Noise

/1/ San Francisco Department of City Planning, Downtown Plan Environmental Impact Report (EIR), EE81.3, certified October 18, 1984, Vol. 1, Table IV.J.2.

/2/ dBA is a measure of sound in units of decibels (dB). The "A" denotes the A-weighted scale, which simulated the response of the human ear to various frequencies of sound. L_{dn}, the day-night average noise level, is a noise measurement based on human reaction to cumulative noise exposure over a 24-hour period, taking into account the greater annoyance of nighttime noises; noise between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

/3/ See Downtown Plan EIR, Vol. 1, Section IV.E generally and pp. IV.J.8-18. Increases of one dBA or less in environmental noise are not noticeable by most people outside a laboratory situation (National Academy of Sciences, Highway Research Board, Research Report No. 117 (1971)). (See also FHWA Highway Traffic Noise Prediction Model, Report #FHWA-RD-77-108, December 1978, p. 8, regarding doubling of traffic volumes producing increases of 3 dBA or more, which are noticed by most people.)

6) Air Quality/Climate. Could the project:	Yes	No	Discussed
*(a) Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?	X		X
*(b) Expose sensitive receptors to substantial pollutant concentrations?	X		X
(c) Permeate its vicinity with objectionable odors?		X	X
(d) Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?	X		X

Two types of air quality impacts could be expected from the proposed project: long term impacts related to use and operation of the project, and short term impacts from construction activity. Project related traffic and cumulative downtown traffic can be expected to contribute to existing air pollution near the project site and will be discussed in the EIR.

Construction activities would temporarily affect local air quality. Excavation and construction activities would not involve burning of any materials and would not create objectionable odor. Excavation, grading and other construction activities would temporarily affect local air quality for about 24 months, causing a temporary increase in particulate dust and other pollutants. Dust emission during demolition and excavation would increase particulate concentrations near the site. This topic will be discussed in the EIR.

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

Diesel-powered equipment would emit, in decreasing order by weight, nitrogen oxides, carbon monoxide, sulfur oxides, hydrocarbons and particulates. This would increase local concentrations temporarily but would not be expected to increase the frequency of violations of air quality standards. The project sponsor would require the project contractor to maintain and operate construction equipment in such a way as to minimize exhaust emissions (see mitigation, p. 27). Air quality effects related to construction equipment require no further analysis.

The project would add between about 775 persons and 820 persons to the resident population of the immediate area. Residential land uses are considered to be sensitive to air pollution because residents tend to be home for extended periods of time, resulting in sustained exposure to any pollutants present, including any effects from operation of diesel buses at the Transbay Terminal and emissions from automobile operation in the proposed project garage. The EIR will evaluate the potential effects of existing and future air quality conditions in the site vicinity on project residents.

The cumulative effects on air quality of traffic emissions from traffic generated by development in the Downtown & Vicinity including the project are analyzed in the Mission Bay and South of Market Plan EIRs. The cumulative analysis in the Mission Bay and South of Market Plan EIRs regarding air quality will be summarized and incorporated by reference in the EIR, and the project effects in relation to cumulative effects will be discussed. The analysis and conclusions of these EIRs remain current regarding future and project conditions.

Potential shadowing impacts of the project on sidewalks, parks and other open spaces will be discussed in the EIR. The analysis will include shadow diagrams.

Section 148 of the City Planning Code establishes comfort criteria of 11 mph equivalent wind speed for pedestrian areas and seven mph for seating areas, not to be exceeded more than ten percent of the time, year-round between 7:00 a.m. and 6:00 p.m. Project wind effects including the results of wind tunnel testing and the effects of the project in relation to the City Planning Code criteria, will be discussed in the project EIR.

7) Utilities/Public Services. Could the project:	Yes	No	Discussed
*(a) Breach published national, state or local standard relating to solid waste or litter control?	___	X	___
*(b) Extend a sewer trunk line with capacity to serve new development?	___	X	___
(c) Substantially increase demand for schools, recreation or other public facilities?	___	X	X
(d) Require major expansion of power, water, or communications facilities?	___	X	___

The Downtown Plan EIR concluded that demand for utilities and public services resulting from development in the C-3 districts under the Downtown Plan would not be significant. The project would fall within this development forecast. The Downtown Plan EIR analysis remains current and valid for future and project conditions. The Downtown Plan EIR (EE81.3, Final EIR certified October 18, 1984) may be examined at the Department of City Planning, 450 McAllister Street.; the San Francisco Main Library and various branch libraries. This topic requires no further analysis in the EIR.

The community service setting and impact discussions in the Downtown Plan EIR (Vol. 1 pp. IV.F.1-21; Vol. 2, pp. A.6-7 and K.1-13; Vol. 3, part 2, pp. C&R-F.1-7) are incorporated by reference and summarized below.

San Francisco's solid waste is currently disposed of at the Altamont Hills landfill. The City recently entered into a contract with the Alameda County Solid Waste Management Authority and the Oakland Scavenger Company to dispose of 15 million tons of solid waste at the Altamont Hills landfill. This is expected to serve the City's needs until 2009.

A sewer system is being built pursuant to the City's Clean Water Program, which is intended to handle combined volumes of sewage and rainwater runoff. Since the capacity of the system is designed to handle rainwater flows (which can be 50 times the volume of regular sewage), additional development citywide would not affect operation of the sewer system.

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

The San Francisco School District has estimated future enrollment based on demographic and census research, and has indicated that additional classrooms will be needed on a citywide basis in the near future. The District has begun claiming back buildings now leased to the Police, Public Utilities Commission and other agencies to provide additional classroom space. The District is also applying to the State for approval of new construction to accommodate anticipated new housing throughout the City. Preliminary research findings indicate that the expansion or new construction of school facilities would be recommended in several areas over the next few years, including the Tenderloin/North of Market, Mission Bay, and the Inner Mission. Surveys conducted in 1986 of Downtown residents, for the Mission Bay EIR (Case No. 86.505E) indicated a student generation rate for public school attendance of approximately 0.0096 students per residential unit. Assuming this rate to remain constant for the proposed project, approximately five new students of the San Francisco Unified School District schools would be generated by the project's 516 new residential units. The project would not, therefore, have a significant impact on the capacities of the School Districts' facilities. This issue will not be discussed in the EIR.

8) Biology. Could the project:	Yes	No	Discussed
*(a) Substantially affect a rare or endangered species of animal or plant or the habitat of the species?	__	X	X
*(b) Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	__	X	__
(c) Require removal of substantial numbers of mature, scenic trees?	__	X	__

Because the site is covered by impervious surfaces, the project would not affect plant or animal habitats. This topic will not be discussed in the EIR.

9) Geology/Topography. Could the project:	Yes	No	Discussed
*(a) Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction).	__	X	X
(b) Change substantially the topography or any unique geologic or physical features of the site?	__	X	X

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

A preliminary geotechnical investigation has been made for the project, and a detailed geotechnical report would be prepared by a California-licensed geologic engineer prior to commencement of construction. The project sponsor and contractor would follow the recommendations of the final report regarding any excavation and construction for the project. Site specific geologic concerns will be discussed in the EIR. Geologic and seismic concerns, including a summary of findings from the geotechnical report and a discussion of seismic issues, will be included in the EIR.

10) Water. Could the project:	Yes	No	Discussed
*(a) Substantially degrade water quality, or contaminate a public water supply?	__	X	__
*(b) Substantially degrade or deplete ground-water resources, or interfere substantially with groundwater recharge?	__	X	X
*(c) Cause substantial flooding, erosion or siltation?	__	X	X

Construction of the proposed sublevels for parking would involve construction below the water table. Dewatering would therefore be neccessary. Groundwater encountered during excavation would be removed through dewatering wells (see mitigation, p. 28).

The site is currently covered with impervious surfaces. The project would cover the site with a building and paved area and therefore would not alter the drainage pattern of the site. Site runoff would drain into the City's combined sanitary and storm drainage system. A mitigation measure to prevent sediment from entering storm sewers is proposed as part of the project (see mitigation, p. 28). The project would not affect drainage patterns or water quality because the site is now entirely covered with impermeable surfaces.

An on-site drainage system for project operation would be provided, and runoff from the completed project would drain into the combined City storm/sewer system and would be treated prior to discharge into the ocean. The storm/sewer system has adequate capacity to carry and treat the runoff from construction dewatering and from the completed project./1/

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

The quality of the surface runoff entering the storm/sewer system would be altered by the contaminant load associated with this project and cumulative development. The proposed project would replace a paved surface parking lot on the site with five levels of covered parking. The surfaces of parking structures tend to contain high levels of suspended solids, as well as gasoline and other hydrocarbons, oil and grease, rubber, lead, and other automobile-related contaminants. These materials are already present on urban streets and parking lots, and are found in various quantities in urban stormwater runoff. The contaminants would enter the drainage system in runoff from the project site during periodic cleaning of the interior of parking levels. The types of contaminants would be essentially the same as those currently washed from City streets, although the ratios of particular materials in the contaminant load may vary, and the volume of materials would increase with more parking surface area added to the site. This increase in volume would contribute to cumulative degradation of the quality of water carried and treated by the storm/sewer system; however, the exact amount of each contaminant generated by the proposed project would be too low to be significant in a project-specific context. To the extent possible, oil separators or similar filtering systems would be included in the on-site catch basins to reduce the project's contribution to the cumulative contaminant load entering the City system. Catch basins would be cleaned and maintained on a schedule at least matching the frequency and regularity of that used by the Department of Public Works. No further analysis of this topic is required in the EIR.

NOTE - Water

/1/ G. Dudley, Engineer, San Francisco Clean Water, Side Sewer Branch, telephone conversation, March 8, 1990.

11) Energy/Natural Resources. Could the project:	Yes	No	Discussed
*(a) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use them in a wasteful manner?	___	X	X
(b) Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	___	X	X

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

A minimal but unknown amount of energy is consumed by existing parking uses on the site. Removal of existing paved parking surfaces would require an unknown amount of energy. Fabrication and transportation of building materials, worker transportation, site development, and building construction would require about 449 billion Btu of gasoline, diesel fuel, natural gas, and electricity./1,2/ Distributed over the estimated 50-year life of the project, this would be about 9 billion Btu per year, or about 31 percent of building energy requirements.

New buildings in San Francisco are required to conform to energy conservation standards specified by Title 24 of the California Code of Regulations. Documentation showing compliance with these standards is submitted with the application for the building permit and is enforced by the Bureau of Building Inspection.

Table 1 shows the estimated operational energy which would be used by the project. Project demand for electricity during PG&E's systemwide peak electrical load periods, July and August afternoons, would be about 163 kW an estimated 0.0009 percent of PG&E's peak load of 17,600 MW./3/ Project demand for natural gas during PG&E's peak natural gas load period, January mornings, would be about 25 million Btu per day, or about 0.007 percent of PG&E's peak load of about 3.7 billion cu. ft. per day./4/ Annual and peak daily electricity and natural gas consumption are shown in Figures 3 and 4 on pages 22 and 23.

Projections of electrical use for growth that would occur in the C-3 district under the Downtown Plan, as analyzed in the Downtown Plan EIR, indicate an increase of about 330-350 million kWh per year between 1984 and 2000, as a result of all new development occurring in the C-3 district. Natural gas consumption is expected to increase by 470 million cu. ft. (about five million therms) per year during the same time period. These figures remain current for the C-3 district.

Increased San Francisco energy demands to the year 2000 would be met by PG&E from nuclear sources, oil and gas facilities, hydroelectric and geothermal facilities, and other sources such as cogeneration, wind and imports. PG&E plans to continue receiving most of its natural gas from Canada and Texas under long-term contracts.

TABLE 1: ESTIMATED PROJECT ENERGY USE/a,e/

Daily Natural Gas Consumption/b/

Estimated natural gas consumption per sq. ft.	40.8 Btu/c/
Estimated total natural gas consumption	252.0 Therms

Monthly Electric Consumption/b/

Estimated electrical consumption per sq. ft.	0.27 kWh (92 Btu)/d/
Estimated total electrical consumption	167,000 kWh (1.7 billion Btu)

Annual Consumption

Estimated total annual natural gas consumption	92,000 Therms (9.2 billion Btu)
Estimated total annual electrical consumption	2.0 million kWh (20.0 billion Btu)
Estimated total annual energy consumption	29.0 billion Btu (5180 barrels of oil)

/a/ Energy use includes space conditioning, service water heating, and lighting in accordance with allowable limits under Title 24. Estimated electricity includes an additional three kWh/sq. ft./yr., consumed by appliances such as coffee makers, etc., than assumed by Title 24 estimates.

/b/ Electricity and natural gas consumption was based on estimates provided by Flack and Kurtz, Consulting Engineers (written communication, July 16, 1990). Calculations for the project are on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St.

/c/ Btu (British thermal unit): a standard unit for measuring heat. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1 degree Fahrenheit (251.97 calories) at sea level.

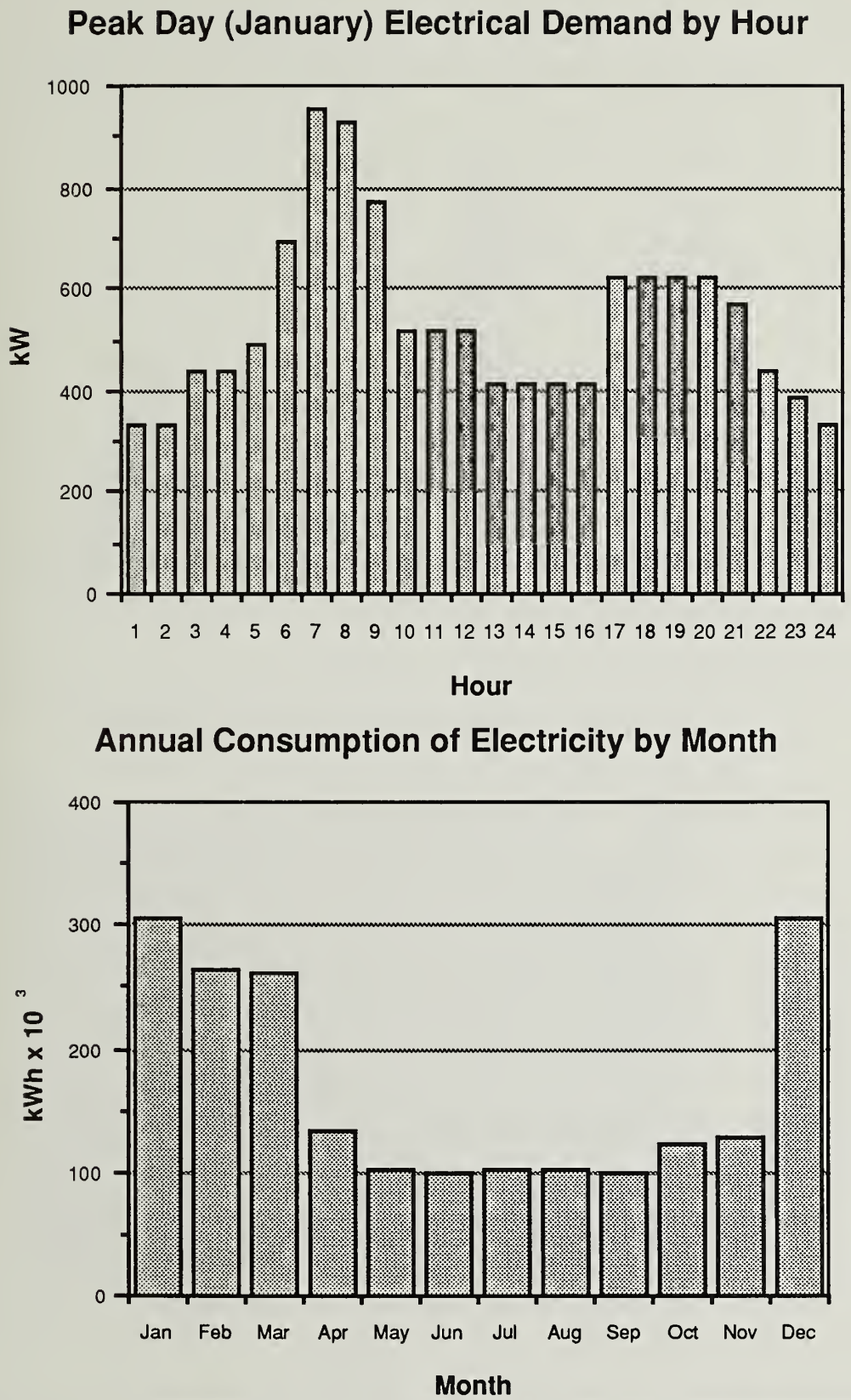
/d/ Energy Conversion Factors:

one gallon gasoline	=	125,000 BTU
one kilowatt (kW)	=	10,239 BTU
one therm	=	100,000 BTU
one barrel oil	=	5,800,000 BTU

/e/ Monthly and annual figures may not match due to rounding to three significant digits.

SOURCE: Environmental Science Associates, Inc., and Department of City Planning

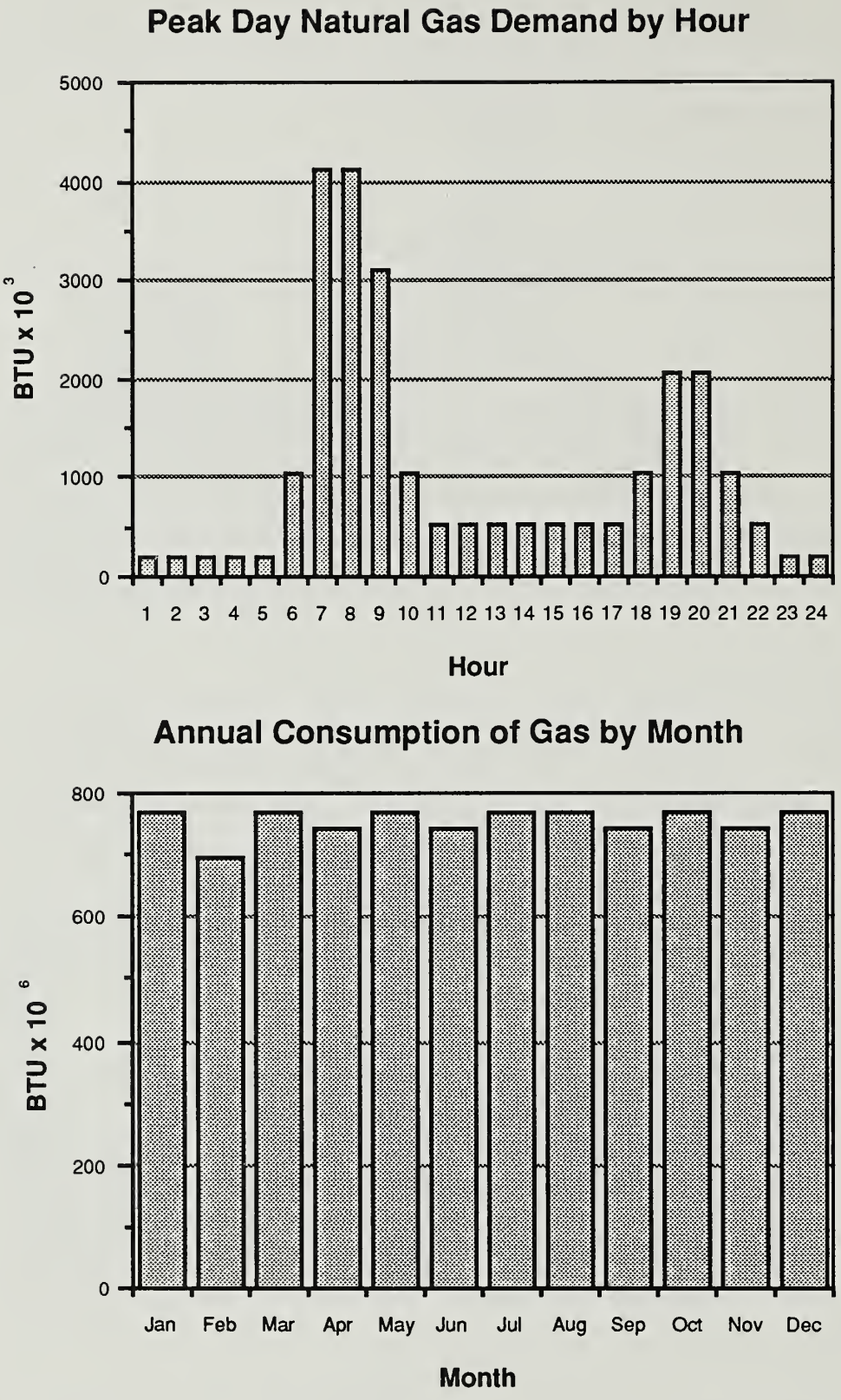
Project-related transportation would cause additional, off-site energy consumption. Annual project-related trips (about 131,000 auto vehicle trip ends [vte], 183,000 bus person trip ends [pte], 8,200 train pte, 300 jitney/van/taxi/motorcycle/charter bus pte, 600 ferry pte, 88,000 BART pte, and 630,000 Muni electric pte) would require about 49,000 gallons of gasoline and diesel fuel, and about 821,000 kWh of electricity annually, as indicated in Table 2.



SOURCE: Flack + Kurtz.

Natoma Mews ■

Figure 3
Projected Electrical Load Distribution Curves



SOURCE: Flack + Kurtz.

Natoma Mews ■

Figure 4
Projected Natural Gas Distribution Curves

TABLE 2: PROJECT-RELATED ANNUAL TRANSPORTATION ENERGY CONSUMPTION IN 2000/a/

	Electricity Thousands (of kWh)	Gasoline Thousands (of Gallons)	Diesel Thousands (of Gallons)	Total Btu (Billion)
Auto/Taxi/Jitney/Motorcycle/ Charter Bus	--	37.3	--	5.2
BART	174.2	--	--	1.8
Muni Electric	646.8	--	--	6.6
Regional Bus Systems	--	--	10.1	1.6
SPRR	--	--	1.2	0.2
Project Total	821.0	37.3	11.4	15.4

/a/ The methods used to calculate these figures are described in detail in the Downtown Plan EIR, EE81.8, certified November 18, 1984, in Appendix N. The associated data is contained in Table 6 of that document. Calculations are also based, in part, on vehicle miles travelled (see calculations for the project on file at the Department of City Planning, Office of Environmental Review, 450 McAllister St.).

Figures may not match due to rounding to three significant figures.

SOURCE: Environmental Science Associates, Inc.

These figures were calculated based on data contained in the Downtown Plan EIR. The total annual transportation energy demand, converted with at-source factors to a common thermal energy unit, would be about 15.4 billion Btu, the energy equivalent of about 2,655 barrels of oil. This projected use is based upon the mix of highway vehicles in California in 1987. Vehicle fuel is expected to decrease as the vehicle fleet becomes more efficient and fuel more expensive.

The Downtown Plan EIR (pp. IV.G.5 - IV.G.19) concluded that energy consumption resulting from development in the C-3 district under the Downtown Plan would not be significant and that conclusion remains valid for the future and project conditions.

This topic, energy impacts, requires no further analysis and will not be discussed in the EIR.

NOTES - Energy/Natural Resources

/1/ The British thermal unit (Btu) is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level; all references to Btu in this initial Study are at-sources values. The term "at-source" means that adjustments have been made in the calculation of the thermal energy equivalent (Btu) for losses in energy that occur during generation. transmission, and distribution of the various energy forms as specified in: ERCDC, 1977, Energy Conservation Design Manual for New Non-Residential Buildings, Energy Conservation and Development Commission, Sacramento, California, and Apostolos, J.A., W.R. Shoemaker, and E. C. Shirley, 1978 Energy and Transportation System, California Department of Transportation, Sacramento, California, Project #20-7, Task 8.

/2/ Hannon, B., et al., 1978, "Energy and Labor in the Construction Sector," Science 202:837-847.

/3/ Project demand during July /August estimated from annual demand, and from PG&E peak January day distribution.

/4/ Robert Grimm, Assistant Chief Gas Dispatcher for PG&E. telephone conversation, January 30,1990.

12) Hazards. Could the project:	Yes	No	Discussed
*(a) Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	__	X	X
*(b) Interfere with emergency response plans or emergency evacuation plans?	__	X	X
(c) Create a potentially substantial fire hazard?	__	X	X

The project would not create a potential public health hazard through the production or disposal of harmful materials.

The project would increase the population in downtown San Francisco. Residents in the proposed building would contribute to congestion if an emergency evacuation of the downtown area were required. Section 12.202 (e) (1) of the San Francisco Fire Code requires that all owners of high-rise buildings (over 75 feet) "shall establish or cause to be established procedures to be followed in case of fire or other emergencies. All such procedures shall be reviewed and approved by the chief of division". Additionally, project construction would have to conform to the provisions of the Building and Fire Codes which require additional life-safety protections for high-rise (over 75 feet) buildings. This issue requires no further discussion in the EIR.

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

The increased number of persons using the site would not substantially increase the fire hazard at the site as the project would be required to conform to the Life Safety provisions of the San Francisco Building Code and Title 24 of the California Code of Regulations.

A discussion of the potential for encountering and disposing of toxic materials at the project site, including subsurface toxins during excavation and the project's relation to Ordinance No. 253-86 (the Maher Ordinance), will be included in the EIR.

13) Cultural. Could the project:	Yes	No	Discussed
*(a) Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historical or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	X		X
(b) Conflict with established recreational, educational, religious or scientific uses of the area?		X	X
(c) Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?		X	X

Archival research was conducted regarding the possibility of encountering artifacts on the project site./1/ Based on the findings of archival research, there exist a potential for the presence of prehistoric/protohistoric archaeological remains. This is based on informed speculation, previous archaeological finds nearby, and the potential that prehistorical cultural resources that once existed may remain intact at an unspecified depth beneath the present ground surface of the site (which was filled rather than cut).

During the early historic era (1776-1848) there is little evidence to suggest that there is likelihood of recovering cultural resources. However, it is possible that both early and later Gold Rush, as well as Late 19th Century cultural resources may exist within the confines of the project site. Potential impacts on cultural resources will be fully analyzed in the EIR, including the results of auger borings performed on the project site.

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* Derived from State EIR Guidelines, Appendix G, normally significant effect

The project sites are not currently occupied by any existing structure, and therefore construction of the project would not require demolition or alteration of any existing building of potential architectural and/or historic significance. The proposed project sites are adjacent to, but are not within, the New Montgomery-Second Street Conservation District. This topic will not be discussed in the EIR.

NOTE - Cultural

/1/ An archaeological resources report titled Archival Cultural Resources Evaluation of the Proposed Natoma Mews Project, San Francisco, California was prepared for the proposed site by Allen G. Pastron, Ph.D., of Archeo-Tec, June 1990, and is on file at the Office of Environmental Review, Department of City Planning, 450 McAllister Street, San Francisco.

C. OTHER	Yes	No	Discussed
Require approval and/or permits from City Departments other than Department of City Planning or Bureau of Building Inspection, or from Regional, State, or Federal Agencies?	___	X	___

D. MITIGATION MEASURES	Yes	No	N/A	Discussed
1) If any significant effects have been identified, are there ways to mitigate them?	___	___	X	___
2) Are all mitigation measures identified above included in the project?	X	___	___	X

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a mitigation chapter describing these measures and also including other measures which would be, or could be, adopted to reduce potential adverse effects of the project identified in the EIR.

Construction Air Quality

- The project sponsor would require the project contractor to maintain and operate construction equipment so as to minimize exhaust emissions of particulates and other pollutants, by such means as a prohibition on idling of motors when equipment is not in use or when trucks are waiting in queues, and implementation of specific maintenance programs to reduce emissions for equipment that would be in frequent use for much of the construction period.

Geology/Topography/Hydrology

- A geotechnical investigation would be made for the project, and a detailed geotechnical report would be prepared by a California-licensed geotechnical engineer prior to commencement of construction. The project sponsor and contractor would follow the recommendations of the final report regarding any excavation and construction for the project.

- As the project would include dewatering, groundwater pumped from the site would be retained in a holding tank to allow suspended particles to settle, if this is found necessary by the Industrial Waste Division of the Department of Public Works, to reduce the amount of sediment entering the storm drain/sewer lines.

- As dewatering would be neccessary, the final soils report would address the potential settlement and subsidence impacts of dewatering. The soils report would contain a determination as to whether or not a lateral and settlement survey should be done to monitor any movement or settlement of surrounding buildings and adjacent streets. If a monitoring survey is recommended, the Department of Public Works would require a Special Inspector (as defined by Article 3 of the Building Code) to be retained by the project sponsor to perform the monitoring. Groundwater observation wells would be installed to monitor the level of the water table and other instruments would be used to monitor potential settlement and subsidence. If, in the judgment of the Special Inspector, unacceptable subsidence were to occur during construction, groundwater recharge would be required to halt the subsidence. The project sponsor would delay construction activities as necessary. Any costs for the survey and for any necessary repairs to services under the street would be borne by the project sponsor.

- The project sponsor would require the general contractor to install and maintain sediment traps in local stormwater intakes during the construction period to reduce the amount of sediment entering the storm drain/sewer lines, if this is found necessary by the Industrial Waste Division of the Department of Public Works.

Water Quality

- See the second and fourth measures under Geology/Topography/Hydrology, above, for mitigation proposed to prevent sediment from entering storm sewers.

E. ALTERNATIVES

Alternatives to the proposed project would include the following:

A. No Project: The site would remain in its existing condition with surface parking remaining.

B. 9:1 FAR: The site would be developed with a FAR of 9:1, the maximum base FAR without the use of TDR. The alternative would not require an exception to the Planning Code, and would not require a Conditional Use Authorization for parking in excess of 150% of the required number of spaces.

C. 18:1 FAR: The site would be developed with a FAR of 18:1, the maximum allowed with the use of TDR.

D. Office and Retail: The residential building site (Site A) would be developed with about 441,300 gsf of office floor area, with a FAR of 13.41:1, within the same building envelope as the proposed project.

These alternatives and their potential impacts will be discussed in the EIR.

F. MANDATORY FINDINGS OF SIGNIFICANCE	Yes	No	Discussed
*1) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plants or animal, or eliminate important examples of the major periods of California history or pre-history?	___	X	___
*2) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	___	X	___
*3) Does the project have possible environmental effects which are individually limited, but cumulatively considerable. (Analyze in the light of past projects, other current projects, and probable future projects.)	X	___	X
*4) Would the project cause substantial adverse affects on human beings, either directly or indirectly?	___	X	___

The project could contribute to cumulative impacts of downtown development, primarily in the areas of transportation and air quality. Applicable cumulative impacts will be discussed in the EIR.

G. ON THE BASIS OF THIS INITIAL STUDY

___ I find that proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.

___ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigations measures, numbers ____ , in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.

_X_ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Barbara W. Sahm

BARBARA W. SAHM
Environmental Review Officer
for

DEAN L. MACRIS
Director of Planning

DATE: Feb 20, 1991

APPENDIX B: WIND STUDY METHODOLOGY

This summary of wind study methodology is based on a report by Bruce R. White, Ph.D., Professor of Mechanical Engineering at the University of California, Davis. The study is independent of the University. The report is available for review at the Department of City Planning, Office of Environmental Review, 450 McAllister Street.

INTRODUCTION

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four mph have no noticeable effect on pedestrian comfort. With winds from four to eight mph, wind is felt on the face. Winds from eight to thirteen mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. For winds from 19 to 26 mph, the force of the wind will be felt on the body. At 26 to 36 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over.

Wind-tunnel tests were conducted for winds in the project vicinity in its existing condition (including all approved development) and with the project in the existing scenario, both in relation to the Downtown Plan wind performance criteria (adopted by the City Planning Commission, November 29, 1984). Wind-tunnel measurements and existing weather records for San Francisco were used to predict equivalent mean wind speeds near the project site./1/ These mean wind speeds were compared to comfort criteria of 11 mph for pedestrian areas and seven mph for sitting areas, each not to be exceeded more than ten percent of the time. Separate calculations were also done to evaluate compliance with the hazard criteria that hourly average wind speeds may not reach or exceed 26 mph for one hour per year.

A one inch = 50 feet scale model of the downtown San Francisco area surrounding the proposed building for several blocks in all directions was provided by ESA. The model was tested in six configurations: the existing setting; the project plus existing; the project in a potential development scenario; an 18:1 FAR alternative, a 9:1 FAR alternative; and an office (15.6:1 FAR) alternative.

The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flow past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 feet), a test section of 1.22 m (4 feet) wide by 1.83 m (6 feet) high, and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from one to eight meters per second (m/s), or 2.2 to 17.9 miles per hour (mph).

Wind-speed measurements were made with a hot-wire anemometer, an instrument that directly relates rates of heat transfer to wind speeds by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. Both the mean wind speeds and corresponding turbulence intensities were measured. Thus, high wind speeds and gustiness (changes in wind speeds over short periods of time) could be detected. Hot-wire measurements made close to the surface have an inherent uncertainty of plus or minus (±) five percent of the true values. The ratio of near-surface speed to reference wind speed was calculated from the hot-wire measurements.

Twenty-two test locations were studied for four prevailing wind directions (northwesterly, west-northwesterly, and westerly) for the six configurations. These wind conditions are the most common in San Francisco, and are therefore the most representative for evaluation proposed. All hot-wire measurements were taken at the same series of surface points around the building site for the four wind directions and the six cases.

METHODOLOGY AND ASSUMPTIONS

The *City Planning Code* Section 148, Reduction of Ground-Level Wind Currents in C-3 Districts, requires buildings to be shaped so as not to cause ground-level wind currents to exceed, more than 10% of the time, 11 mph in substantial pedestrian use areas, and 7 mph in public seating areas. Similarly, the *Code* requires that buildings not cause equivalent wind speeds to reach or exceed the hazard level of 26 mph for a single hour of the year. The 7 mph and 11 mph comfort criteria are based on wind speeds that are measured for one minute and averaged. In contrast, the 26 mph hazard criterion is based on wind speeds that are measured for one hour and averaged; this is equivalent to a one-minute average of 36 mph.

The wind ordinance is defined in terms of equivalent wind speed. This term denotes an average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence.

The mean wind speeds at street level were determined by a wind-tunnel test and a comparison of the test results with statistically representative records of wind data collected atop the Old Federal Building. Data describing the speed, direction, and frequency of occurrence of winds were gathered at the old San Francisco Federal Building, at 50 United Nations Plaza, during the six-year period 1945 to 1950. Measurements taken hourly and averaged over one-minute periods have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00 a.m. to 8:00 p.m., about 62 percent of the winds blow from four of the 16 directions, as follows: Northwest (NW), 10 percent; West Northwest (WNW), 14 percent; West (W), 35 percent; West Southwest (WSW), 2 percent; and all other winds, 36 percent. Calm conditions occur two percent of the time.

Each wind-tunnel measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the Old San Francisco Federal Building. The frequency with which a particular wind velocity is exceeded at any test location is then calculated by using the measured wind-tunnel ratios and a specified ground speed to determine the corresponding reference wind speed for each direction. In general, this gives different reference speeds for each direction (NW, WNW, W, WSW (included in wind-tunnel analyses of South-of-Market projects), and Other). The wind data for San Francisco are then used to calculate the percentage of the time that the specific ground-level wind speed is exceeded. The sum of these is the total percentage of time that the specified ground-level wind speed is exceeded. A computer is used to calculate the total percentages for a series of wind speeds until the speed exceeded ten percent of the time is found. Throughout the discussion of wind-tunnel results, the wind speeds reported refer to the equivalent wind speeds.

The wind data observed at the Old San Francisco Federal Building are not full hour average speeds as required by the code, so it is necessary to adjust the equivalent speeds to obtain the true hourly average of 26 mph./2/ The adjusted equivalent wind speeds were used to calculate compliance with the hazard criterion.

STUDY RESULTS

The locations of the measurement points and the results of the wind-tunnel study for compliance with the comfort criteria are summarized in Figure B-1. The pedestrian comfort criterion speed of 11 mph applies at 20 test locations, while the seating criterion of seven mph applies at two test locations (points 11 and 14) which are located in an area indicated in preliminary drawings as intended for outdoor seating and/or open restaurant use.

Existing Setting

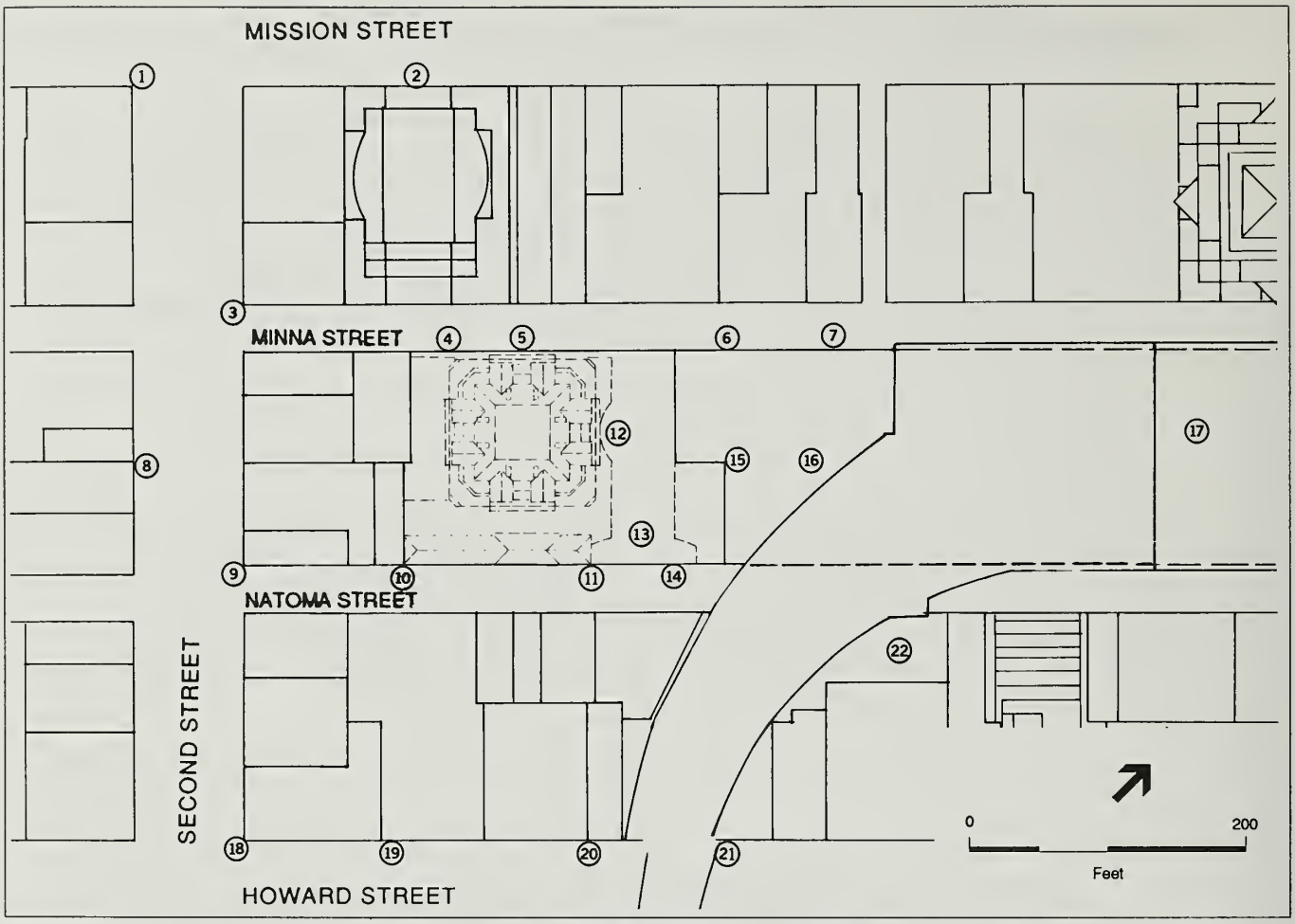
Wind speeds in the existing setting range from four to 11 mph at the 22 locations tested. The comfort criterion for pedestrians is currently met at all test locations, while the seven mph seating criterion is met at 11 locations. The comfort criterion for outdoor seating is violated, however, at both locations for which it applies. The hazard criterion is not violated at any test location in the existing setting.

Project

Wind speeds in the existing setting plus the project would range from four to 11 mph at the 22 locations tested. The project would cause winds to decrease at 12 of the 22 locations, be unchanged at four locations, and increase at six locations tested. The comfort criterion for pedestrians would be met at all test locations, while the seven mph seating criterion would be met a 12 locations. Wind speeds on the mezzanine area are estimated to be 11 mph or less, thus meeting the pedestrian comfort criterion. The comfort criterion for outdoor seating would be met at both locations for which it applies. The hazard criterion would not be violated at any of the locations tested with the project in place.

Project in Potential Development Scenario

This setting was included in the wind-tunnel analysis in order to address the possible effects future San Francisco Redevelopment Agency buildings (specifically those along the eastern side of Third Street between Mission and Howard Streets) may have on the project. It is found that wind conditions in this setting would be almost identical to the project setting, except for two decreases of one mph each. Thus, the



Location	Criterion Speed (mph)	EXISTING SETTING 10% Exc. Speed (mph)	EXISTING SETTING % Time Criterion Exceeded	PROJECT 10% Exc. Speed (mph)	PROJECT % Time Criterion Exceeded	PROJECT w/ POT. DEVELOPMENT 10% Exc. Speed (mph)	PROJECT w/ POT. DEVELOPMENT % Time Criterion Exceeded	18:1 FAR ALTERNATIVE 10% Exc. Speed (mph)	18:1 FAR ALTERNATIVE % Time Criterion Exceeded	9:1 FAR ALTERNATIVE 10% Exc. Speed (mph)	9:1 FAR ALTERNATIVE % Time Criterion Exceeded	OFFICE ALTERNATIVE 10% Exc. Speed (mph)	OFFICE ALTERNATIVE % Time Criterion Exceeded
1	11	9		9		9		9		9		9	
2	11	9		10		10		10		10		10	
3	11	11		10		10		10		10		10	
4	11	11		10		10		8		9		10	
5	11	8		11		11		12	2%	10		11	
6	11	5		8		7		11		8		8	
7	11	5		4		4		5		5		4	
8	11	7		6		6		7		7		6	
9	11	10		10		10		10		9		10	
10	11	7		11		10		14	12%	11		11	
11	7	10	18%	7		7		12	20%	9	7%	8	2%
12	11	6		5		5		10		5		5	
13	11	8		6		6		6		5		6	
14	7	8	3%	7		7		7		5		7	
15	11	6		4		4		9		5		4	
16	11	6		5		5		7		5		5	
17	11	10		11		11		12	2%	11		11	
18	11	11		11		11		13	9%	12	5%	11	
19	11	6		6		6		7		7		6	
20	11	4		6		6		7		6		6	
21	11	6		4		4		6		5		4	
22	11	6		4		4		6		4		4	

SOURCE: Bruce White, Ph.D.

Natoma Mews ■

Figure B-1
Locations for Wind Speed Measurements

presence of the Redevelopment Agency buildings (as modeled) would have no local effects on the wind environment of the project. The hazard criterion would not be violated.

18:1 FAR Residential Alternative

The currently proposed 18:1 FAR Residential Alternative was not specifically tested in the wind tunnel, although an 18:1 FAR Alternative was included in the wind-tunnel analysis. The current design is similar in general massing to the alternative addressed in the wind tunnel, however it incorporates more angular variation in the building facade. It is believed that the current design would perform as well as, or better than, the 18:1 FAR Alternative that was used in testing.

Winds in the existing setting plus the 18:1 FAR Alternative (as tested) would range from five to 14 mph at the 22 locations tested. As compared with existing conditions, this alternative would cause winds to decrease at four of the 22 locations, be unchanged at six locations, and increase at 12 locations. The comfort criterion for pedestrians would be exceeded at five locations, and the comfort criterion for outdoor seating would be exceeded at one of the two locations for which it applies. The broad massing of the lower section and the total height of the 18:1 FAR Alternative would generally create higher speed ground-level winds than would the project or any of the other alternatives. However, results indicate that this alternative would reduce wind speeds on Minna Street at the southwest corner of the project site (test location 4) from 11 mph in the existing setting to 8 mph, as compared to 10 mph with the project. This limited effect is likely due to the corner details of the alternative building. The hazard criterion would not be violated.

9:1 FAR Residential Alternative

Wind speeds in the existing setting plus the 9:1 FAR Residential Alternative would range from four to 11 mph at the 22 locations tested. As compared with existing conditions, this alternative would cause winds to decrease at 11 of the 22 locations, be unchanged at three locations, and increase at eight locations. The comfort criterion for pedestrians would be exceeded at one location, and the comfort criterion for outdoor seating would be exceeded at one of the two locations for which it applies. While

shorter buildings typically impact pedestrian-level winds less than do taller buildings, the 9:1 FAR Alternative generally would not perform better in regard to wind effects than the project building. At some locations, the broad massing of the alternative building would create higher speed ground-level winds than would the project. The hazard criterion would not be violated.

15.6:1 FAR Office Alternative

The currently proposed Office Alternative was not specifically tested in the wind tunnel, although an Office Alternative similar in general massing was included in the wind-tunnel analysis. It is believed that the current design would create conditions similar to the Office Alternative used in testing.

Wind conditions in the existing setting plus the 15.6:1 FAR Office Alternative (as tested) would be almost identical to the existing setting plus the project. The only distinguishing factor would be that, in this setting, winds at one of the two locations found in outdoor seating areas would exceed the seven mph criterion for outdoor seating. The hazard criterion still would not be violated.

NOTES - Shadow and Wind

/1/ This section is based on a study entitled, "Wind-Tunnel Test of the Natoma Mews Project," prepared by Bruce R. White, Ph.D., for Environmental Science Associates, Inc. A complete report is on file and available for review at the Department of Planning, Office of Environmental Review, 450 McAllister Street, San Francisco, CA.

/2/ Equivalent wind speed is an hourly wind speed adjusted to incorporate the effects of gustiness or turbulence on pedestrians.

APPENDIX C: HAZARDOUS MATERIALS

HAZARDOUS WASTE REGULATORY FRAMEWORK

Laws and regulations govern the management of hazardous materials and wastes at the federal, state, and local levels. The major federal and state laws and regulations are discussed below.

FEDERAL

The United States Environmental Protection Agency (EPA) is responsible for enforcing regulations at the federal level pertaining to hazardous materials and wastes. The primary federal hazardous materials and waste laws are contained in the Resource Conservation and Recovery Act of 1976 (RCRA), and in the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). These laws require that responsible parties report any known hazardous waste contamination of soil or groundwater to the EPA pursuant to applicable regulations. (State and local agencies also must be involved. In San Francisco, reporting must include the California Department of Health Services, the San Francisco Bay Area Regional Water Quality Control Board, or the San Francisco Department of Public Health, depending on specific circumstances.) Any contamination that threatens public health or the environment must be remediated by the responsible party according to certain standards set by the EPA.

Federal regulations pertaining to hazardous materials and wastes are contained in the Code of Federal Regulations (40 CFR). Statues that authorize these regulations are set forth in the United States Code. The regulations contain specific guidelines for determining whether a waste is hazardous, based on either the source of generation or the characteristics of the waste. Determination of standards for remediation of soil and groundwater contamination is performed on a case-by-case basis by the agency with lead jurisdiction. However, extensive federal guidance exists for determining acceptable levels of residual contaminants in soil and groundwater.

STATE

The EPA has delegated much of its regulatory authority to individual states whenever adequate state regulatory programs exist. The Toxic Substance Control Division of the California Department of Health Services is the agency empowered to enforce federal hazardous materials and waste regulations in California, in conjunction with the EPA.

California hazardous materials and waste laws incorporate federal standards, but in many respects are stricter. For example, the California Hazardous Waste Control Law, the state equivalent of RCRA, contains a much broader definition of hazardous materials and waste. Some substances not considered hazardous under federal law are considered hazardous under state law. The California Hazardous Substance Account Act, essentially the equivalent of CERCLA, contains a provision for designation of state funds to clean up sites where private funding is unobtainable. State hazardous materials and waste laws are contained in the California Code of Regulations (CCR), Titles 22 and 26.

Regulations implementing the California Hazardous Waste Control Law list 791 hazardous chemicals and 20 to 30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management of hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and the California Hazardous Waste Control Law, hazardous waste manifests must be retained by the generator for a minimum of three years. A hazardous waste manifest lists a description of the waste, its intended destination, and regulatory information about the waste. A copy of each manifest must be filed with the California Department of Health Services. The generator must match copies of hazardous waste manifests with receipts from the treatment / disposal / recycling facility to confirm the wastes were properly handled.

The Project Area is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The RWQCB is authorized by the State Water Resources Control Board to enforce the provisions of the Porter-Cologne Water Quality Control Act of 1969, which incorporates federal water protection laws and

additional state law provisions. That Act gives the RWQCB authority to require groundwater investigations when the quality of the groundwaters or surface waters of the state have been or could be threatened, and to remediate the site if necessary.

For sites requiring remediation, the level of site cleanup is determined on a case-by-case basis. The Department of Health Services, the RWQCB, or a local agency could act as the lead state agency in site investigations and remediation projects. The state determines the level and extent of required clean-up, based on the specific site conditions and surrounding land uses. State clean-up standards can be more restrictive than federal standards; both state and federal standards are used to determine clean-up levels. Clean-up standards employed by the RWQCB can be more stringent than those used by EPA or the Department of Health Services, and are region-specific./1/ If soils containing hazardous materials are excavated, the Bay Area Air Quality Management District may impose specific requirements on such activities to protect ambient air quality from dust or airborne contaminants. For example, Bay Area Air Quality Management District Regulations 8, Rule 40 limits emissions of organic compounds from soil that has been contaminated by organic chemical or petroleum chemical leaks or spills, and describes acceptable procedures for controlling emissions from such soils and from underground storage tanks intended for removal.

HAZARDOUS SUBSTANCE WORKER SAFETY REQUIREMENTS

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Under authority of the Occupational Safety and Health Act of 1970, Fed/OSHA has adopted numerous regulations pertaining to worker safety (contained in the Code of Federal Regulations Title 29 [29 CFR -- Labor]). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (detailed in Title 8 of the California Code of Regulations [8 CCR]) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites./2/ The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

POTENTIAL SOURCES OF CONTAMINATION FROM OFF-SITE ACTIVITIES

Land can be affected by spills or contamination at adjacent properties. Several historic industries that were potential sources of contamination operated in the vicinity of the project. Use of hazardous materials or production of hazardous wastes on parcels adjacent to the project site could have caused contamination affecting the subject property. The most noteworthy were a gasoline engine repair facility and a possible gas station and auto shop with a gas and oil storage or pumping facility, that were situated immediately adjacent to the site in 1950./3/ The primary route of migration of contaminants from one site to another is through groundwater./4/ Although the approximately 36-foot deep excavation planned at the site is expected to reach the water table, groundwater was not encountered in the fifteen-feet-deep borings done by Geomatrix./3/ On the basis of the *Environmental Site Assessment*, the potential for site contamination from neighboring land uses were generally assessed./5/

The project vicinity contained moderate to intensive industrial uses for several decades after it was rebuilt following the 1906 earthquake and fire. This review focuses on current and past land uses that would be most likely to have caused soil or groundwater contamination at the project site through contamination of properties immediately adjacent to the site. Properties farther away than about one-half block are less likely to have caused contamination of the site due to their greater distance. It is possible that other contamination due to identified or non-identified historic land

uses exists. However, the land uses noted below, as well as the on-site uses noted above, would be representative of industries that could have caused soil or groundwater contamination in the area.

In addition to the possible adjacent oil and gas storage, nearby historic businesses that are potential sources of contamination include an electrical shop, sheet metal operations, light manufacturing, a tire recapping shop, and an automobile garage./3/ Table C-1 lists sites and installations identified as being known or potential sources of soil and/or groundwater contamination in the immediate vicinity of the project. Approximate locations of the various historic businesses and USTs are shown in Figure 18, p. 65.

SITE REMEDIATION

Soil remediation methods could include excavation and site treatment, excavation and off-site treatment or disposal, or treatment without excavation. Some methods of in-situ treatment of soils contaminated with petroleum hydrocarbons, solvents and/or heavy metals include:

- *Bioremediation.* Enhancement or introduction of microbial organisms in in-situ soils to promote degradation of organic contaminants.
- *Chemical fixation.* Introduction of chemicals that will bind with and stabilize contaminants in soil.
- *Soil washing.* Introducing water solution into soil in-situ to dissolve contaminants, and then removing and treating or disposing of wash water.

Excavated soils can be treated either on- or off-site as described above. Excavated soils can also be air stripped by introducing forced air to remove volatile contaminants that are then trapped and collected in a filter medium. Excavated soils that are hauled off-site may be similarly treated at permitted hazardous waste facilities.

Remediation alternatives for clean-up of contaminated groundwater could include in-situ treatment, extraction and on-site treatment, or extraction and off-site treatment and/or disposal. Groundwater is extracted by pumping it out of wells installed on-site. Some of the technologies for treatment of organic contaminants include use of carbon adsorption, filtration systems and oil-water gravity separation. Metal precipitation and subsequent removal of a solid is a common treatment for groundwater contaminated

TABLE C-1: POTENTIAL CONTAMINANTS FROM HISTORIC INDUSTRIES NEAR THE PROJECT SITE

Key/a/	Historic Industry	Potential Contaminants
D	Sheet Metal Works	Metals, acids, oils, solvents.
E	Light manufacturing activity	Not known
F	Gasoline engine repair	Metals, acids, oils, solvents.
G	Gas station, auto repair	Petroleum products, metals, acids, oils, solvents.
/b/	Electrical shop	Metals, solvents, miscellaneous hydrocarbons
/b/	Tire recapping garage	Oils, solvents, petroleum products
H	Waste oil contamination	Petroleum hydrocarbons
I	Soil contamination	Petroleum hydrocarbons
J	Soil contamination	Petroleum hydrocarbons
K	Leaking gasoline UST/c/	Petroleum hydrocarbons
L	Bunker oil UST/c/	Petroleum hydrocarbons
M	Gasoline UST /c/	Gasoline, petroleum hydrocarbons
N	Gasoline and diesel soil contamination	Gasoline, diesel, petroleum hydrocarbons
P	UST/c/	Petroleum hydrocarbons

NOTES:

/a/ Location keys are shown in Figure 18, p. 65.
/b/ Exact location near the site is unspecified in source document.
/c/ Underground storage tank.

SOURCE: Geomatrix Consultants, Environmental Site Assessment, 1990.

by heavy metals. Extracted groundwater may also be hauled off-site for treatment at a hazardous waste facility. Discharge of treated groundwater to the publicly owned treatment works would require regulatory agency permits.

NOTES - Hazardous Materials

/1/ The Regional Water Quality Control Board (RWQCB) water quality protection objectives and goals for the San Francisco Bay Region are contained in the *Water Quality Control Plan, San Francisco Bay Basin, Region (2)*, December 1986.

/2/ *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities*, National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA), NIOSH Publication No. 85-115, October, 1985.

/3/ Geomatrix Consultants, Environmental Site Assessment, Minna and Natoma Streets, San Francisco, California, Prepared for Dinkelspiel, Donovan and Reder, One Embarcadero Center, San Francisco, April 13, 1990.

/4/ The rate of migration of a substance depends on its chemical and physical properties and the properties of the media through which it flows; e.g., gasoline can migrate readily through the soil, while lead attaches to soil particles and is virtually immobile.

/5/ A complete site history conducted for each individual property within the project vicinity could reveal additional potential sources.

APPENDIX D: TRANPORTATION

TABLE D-1: PASSENGER LEVELS OF SERVICE ON BUS TRANSIT

Level of Service	Description	Passengers per Seat
A	Level of Service A describes a condition of excellent passenger comfort. Passenger loadings are low with fewer than half the seats filled. There is little or no restriction on passenger maneuverability. Passenger loading times do not affect scheduled operation.	0.00-0.50
B	Level of Service B is in the range of passenger comfort with moderate passenger loadings. Passengers still have reasonable freedom of movement on the transit vehicle. Passenger loading times do not affect scheduled operations.	0.51-0.75
C	Level of Service C is still in the zone of passenger comfort, but loadings approach seated capacity and passenger maneuverability on the transit vehicle is beginning to be restricted. Relatively satisfactory operating schedules are still obtained as passenger loading times are not excessive.	0.76-1.00
D	Level of Service D approaches uncomfortable passenger conditions with tolerable numbers of standees. Passengers have restricted freedom to move about on the transit vehicle. Conditions can be tolerated for short periods of time. Passenger loadings begin to affect schedule adherence, as the restricted freedom of movement for passengers requires longer loading times.	1.01-1.25
E	Level of Service E passenger loadings approach manufacturers' recommended maximums and passenger comfort is at low levels. Freedom to move about is substantially diminished. Passenger loading times increase as mobility of passengers on the transit vehicle decreases. Scheduled operation is difficult to maintain at this level. Bunching of buses tends to occur, which can rapidly cause operations to deteriorate.	1.26-1.50
F	Level of Service F describes crush loadings. Passenger comfort and maneuverability are extremely poor. Crush loadings lead to deterioration of scheduled operations through substantially increased loading times.	1.51-1.60

SOURCE: Environmental Science Associates, Inc. from information in the *Interim Materials on Highway Capacity*, Transportation Research Circular 212, pp. 73-113, Transportation Research Board, 1980.

INBOUND N-JUDAH – Duboce and Church
8:30 am, Wednesday, March 21, 1990

OUTBOUND N-JUDAH – Van Ness Station
5:30 pm, Tuesday, March 20, 1990

INBOUND 38L-GEARY– Van Ness and O'Farrell
8:35 am, Thursday, March 22, 1990

OUTBOUND L-TARAVAL – Van Ness Station
5:35 pm, Tuesday, March 20, 1990

SOURCE: Environmental Science Associates, Inc.

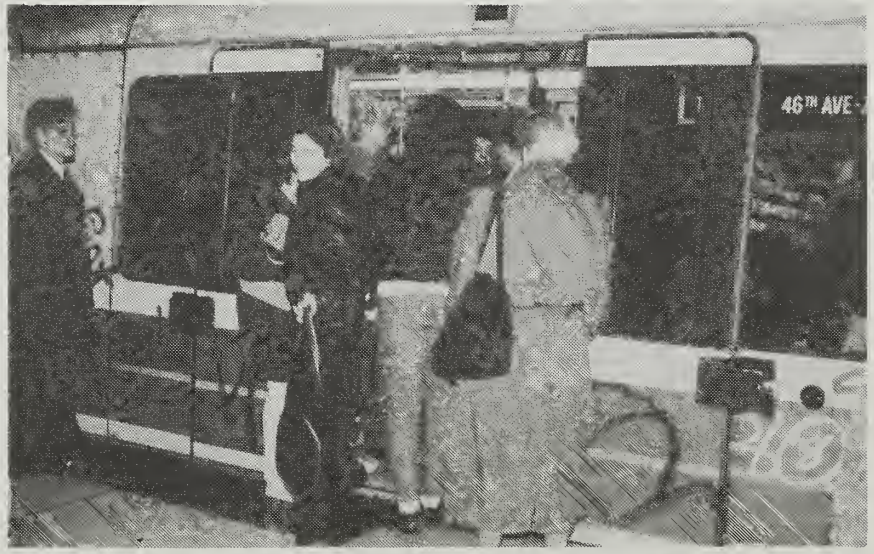
Natoma Mews ■

Figure D-1
Photos of MUNI Peak Loading Conditions

INBOUND **M-OCEANVIEW** – Civic Center Station
7:45 am, Thursday, March 29, 1990

OUTBOUND **J-CHURCH** – Van Ness Station
5:20 pm, Thursday, March 29, 1990

INBOUND **K-INGLESIDE** – Civic Center Station
7:55 am, Thursday, March 29, 1990



OUTBOUND **L-TARAVAL** – Van Ness Station
5:45 pm, Thursday, March 29, 1990

Natoma Mews ■

SOURCE: Environmental Science Associates, Inc.

Figure D-1 (continued)
Photos of MUNI Peak Loading Conditions

INBOUND **14-MISSION** – Mission and 24th Streets
7:35 am, Thursday, March 29, 1990

INBOUND **38L-GEARY** – O'Farrell and Van Ness
8:35 am, Thursday, March 29, 1990

SOURCE: Environmental Science Associates, Inc.

Figure D-1 (continued)
Photos of MUNI Peak Loading Conditions

INTERSECTION ANALYSIS

The capacity analysis of each intersection at which a turning movement count was made used the "critical lane" method. This method of capacity calculation is a summation of maximum conflicting approach lane volumes that gives the capacity of an intersection in vehicles per hour per lane. (This method is explained in detail in an article entitled "Intersection Capacity Measurement Through Critical Movement Summations: A Planning Tool," by Henry B. McInerney and Stephen G. Peterson, January 1971, *Traffic Engineering*. This method is also explained in "Interim Materials on Highway Capacity", *Transportation Research Circular No. 212*, Transportation Research Board, January 1980). The maximum service volume for level of service E was assumed as intersection capacity. A service volume is the maximum number of vehicles that can pass an intersection during a specified time period in which operating conditions are maintained corresponding to the selected and specified level of service (see Table D-2). For each intersection analyzed, the existing peak-hour volume was computed and a volume-to-capacity (v/c) ratio calculated by dividing the existing volume by the capacity at level of service E.

PEDESTRIAN ANALYSIS

The pedestrian analysis has been conducted following methods developed by Pushkarev and Zupan in *Urban Space for Pedestrians* (MIT Press, 1975). Table D-4 shows the relationship between pedestrian flow rates and the flow regimes (categories) used to describe levels of operation. Figure D-2 shows photographs of pedestrian conditions that correspond to the flow regimes.

TABLE D-2: VEHICULAR LEVELS OF SERVICE AT SIGNALIZED INTERSECTIONS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	less than 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from *Transportation Research Circular No. 212*, Transportation Research Board, 1980.

TABLE D-3: TRAFFIC LEVELS OF SERVICE FOR FREEWAYS

Level of Service	Description	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition of free flow, with low volumes and high speeds. Traffic density is low, with speeds controlled by driver desires, speed limits, and physical roadway conditions. There is little or no restriction in maneuverability due to the presence of other vehicles, and drivers can maintain their desired speeds with little or no delay.	0.00-0.60
B	Level of Service B is in the higher speed range of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation. Reductions in speed are not unreasonable, with a low probability of traffic flow being restricted.	0.61-0.70
C	Level of Service C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes. Most of the drivers are restricted in their freedom to select their own speed, change lanes, or pass. A relatively satisfactory operating speed is still obtained.	0.71-0.80
D	Level of Service D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low, but conditions can be tolerated for short periods of time.	0.81-0.90
E	Level of Service E cannot be described by speed alone, but represents operations at even lower operating speeds (typicallyabout 30 to 35 mph) than in Level D, with volumes at or near the capacity of the highway. Flow is unstable, and there may be stoppages of momentary duration.	0.91-1.00
F	Level of Service F describes forced flow operation at low speeds (less than 30 mph), in which the freeway acts as storage for queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time because of downstream congestion. In the extreme, both speed and volume can drop to zero.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from information in the *Highway Capacity Manual*, Special Report 87, Highway Research Board, 1965.

TABLE D-4: PEDESTRIAN FLOW REGIMEN

Flow Regime/a/	Choice	Conflicts	Flow Rate (p/f/m)/b/
Open	Free Selection	None	less than 0.5
Unimpeded	Some Selection	Minor	0.5 to 2.0
Impeded	Some Selection	High Indirect Interaction	2.1 to 6.0
Constrained	Some Restriction	Multiple	6.1 to 10.0
Crowded	Restricted	High Probability	10.1 to 14.0
	Design Limit - Upper Limit of Desirable Flow		
Congested	All Reduced	Frequent	14.1 to 18.0
Jammed	Shuffle Only	Unavoidable	Not applicable/c/

/a/ Photographs of these conditions are shown in Figure D-2.
/b/ P/F/M = Pedestrians per foot of effective sidewalk width per minute.
/c/ For Jammed Flow, the (attempted) flow rate degrades to zero at complete breakdown.

SOURCE: *Urban Space for Pedestrians*, MIT Press, 1975, Cambridge, MA.

JAMMED FLOW. Space per pedestrian in this view is about 3.8 sq ft (0.35 m^2). This is representative of the lower half of the speed-flow curve, where only shuffling movement is possible and even the extremely uncomfortable maximum flow rate of 25 people per min per ft (82 per m) of walkway width cannot be attained due to lack of space. Photograph by Louis B. Schlivek.

The threshold of CONGESTED FLOW. The first eleven people in the view have about 16 sq ft (1.5 m^2) per person, corresponding to a flow rate of about 15 people per min per ft (49 per m) of walkway width. The beginnings of congestion are evident in bodily conflicts affecting at least three of the walkers, and in blocked opportunities for walking at a normal pace.

The onset of CROWDED FLOW, with an average of about 24 sq ft (2.2 m^2) per person, or a flow rate of about 10 people per min per ft (33 per m) of walkway width. Choice of speed is partially restricted, the probability of conflicts is fairly high, passing is difficult. Voluntary groups of two, of which two can be seen in the picture, are maintained, but cause interference. Note also some overflow into the vehicular roadway in the background.

The midpoint of the CONSTRAINED FLOW range, with about 30 sq ft (2.8 m^2) per person, or a flow rate of about 8 people per min per ft (26 per m) of walkway width. The choice of speed is occasionally restricted, crossing and passing movements are possible, but with interference and with the likelihood of conflicts. The man in the dark suit seems to be able to cross in front of the two women in the foreground quite freely, but in the background near the curb people are having difficulty with passing maneuvers.

SOURCE: Pushkarev and Zupan

Natoma Mews ■

Figure D-2
Photos of Pedestrian Flow Levels

The borderline between IMPEDED and UNIMPEDED FLOW, with about 130 sq ft (12 m^2) per person, or a flow rate of about 2 people per min per ft (6.5 per m) of walkway width. Individuals as well as couples visible in this view have a choice of speed and direction of movement. This rate of flow is recommended for design of outdoor walkways in office districts and other less dense parts of downtown areas.

The uneven nature of UNIMPEDED FLOW. While the people walking in the plaza which is 17 ft (5.2 m) wide, compared to 23 ft (7 m) in the preceding picture have almost 130 sq ft (12 m^2) per person on the average, the space allocation for the eight individuals in the foreground is closer to 70 sq ft (6.4 m^2). Thus, indirect interaction with others is still quite frequent in the upper range of UNIMPEDED FLOW.

The midpoint of the IMPEDED FLOW range, with about 75 sq ft (6.9 m^2) per person, or a flow rate of about 4 people per min per ft (13 per m) of walkway width. Physical conflicts are absent, but pedestrian navigation does require constant indirect interaction with others. This rate of flow is recommended as an upper limit for the design of outdoor walkways in shopping districts and other dense parts of downtown areas.

Lower range of UNIMPEDED movement, approaching OPEN FLOW. About 350 sq ft (32.2 m^2) per person, or a flow rate of less than 1 person per min per ft (3.3 per m) of walkway width. Complete freedom to select the speed and direction of movement; individuals behave quite independently of each other. For a design standard based solely on pedestrian density, this amount of space can be considered excessive.

RCE: Pushkarev and Zupan

Natoma Mews ■

Figure D-2 (continued)
Photos of Pedestrian Flow Levels

TABLE D-5: PARKING DEMAND CALCULATIONS

PARKING METHODOLOGY

Long Term Parking Demand:

$$\frac{\text{Office Space gsf}}{20{,}000} + \left(\frac{\text{Office Space GSF}}{275\text{GSF/employee}} \times 0.11\right) + \left(\frac{\text{Retail GSF}}{350\text{ GSF/employee}} \times 0.15\right) + \text{Residential Dwelling Units} \times 1.0$$

= Long Term Parking Demand

Short Term Parking Demand:

$$\frac{\text{Office Space gsf}}{20{,}000} + \frac{\text{Retail GSF}}{1{,}000} = \text{Short Term Parking Demand}$$

Total Parking Demand:

Long Term Parking Demand + Short Term Parking Demand = Total Parking Demand

PROJECT

Project Long Term Parking Demand

$$\frac{18{,}400}{20{,}000} + \left(\frac{18{,}400}{275} \times 0.11\right) + \left(\frac{12{,}048}{350} \times 0.15\right) + (509 \times 1.0) = 0.9 + 7.4 + 5.2 + 509 = 523$$

Project Short Term Parking Demand

$$\frac{18{,}400}{20{,}000} + \frac{12{,}048}{1{,}000} = 0.9 + 12.0 = 13$$

Total Project Parking Demand

522 + 13 = 536

RESIDENTIAL TOWER SITE

Long Term Parking Demand

$$\frac{0}{20{,}000} + \left(\frac{0}{275} \times 0.11\right) + \left(\frac{8{,}820}{350} \times 0.15\right) + (509 \times 1.0) = 0 + 0 + 3.8 + 509 = 513$$

Short Term Parking Demand

$$\frac{0}{20{,}000} + \frac{8{,}820}{1{,}000} = 0 + 8.8 = 9$$

Total Residential Tower Parking Demand

513 + 9 = 522

(Continued)

TABLE D-5: PARKING DEMAND CALCULATIONS (Continued)

OFFICE/RETAIL BUILDING

Long Term Parking Demand

$$\frac{18,400}{20,000} + \left(\frac{18,400}{275} \times 0.11\right) + \left(\frac{3,228}{350} \times 0.15\right) + (0 \times 1.0) = 0.9 + 7.4 + 1.4 + 0 = 10$$

Short Term Parking Demand

$$\frac{18,400}{20,000} + \frac{3,228}{1,000} = 0.9 + 3.2 = 4$$

Total Office/Retail Building Parking Demand

$10 + 4 = 14$

ALTERNATIVE B

Alternative B Long Term Parking Demand

$$\frac{18,400}{20,000} + \left(\frac{18,400}{275} \times 0.11\right) + \left(\frac{12,048}{350} \times 0.15\right) + (263 \times 1.0) = 0.9 + 7.4 + 5.2 + 263 = 276$$

Alternative B Short Term Parking Demand

$$\frac{18,400}{20,000} + \frac{12,048}{1,000} = 0.9 + 12.0 = 13$$

Total Alternative B Parking Demand

$276 + 13 = 289$

ALTERNATIVE C

Alternative C Long Term Parking Demand

$$\frac{18,400}{20,000} + \left(\frac{18,400}{275} \times 0.11\right) + \left(\frac{12,048}{350} \times 0.15\right) + (582 \times 1.0) = 0.9 + 7.4 + 5.2 + 582 = 595$$

Alternative C Short Term Parking Demand

$$\frac{18,400}{20,000} + \frac{12,048}{1,000} = 0.9 + 12.0 = 13$$

Total Alternative C Parking Demand

$595 + 13 = 608$

(Continued)

TABLE D-5: PARKING DEMAND CALCULATIONS (Continued)

ALTERNATIVE D

Alternative D Long Term Parking Demand

$$\frac{459,800}{20,000} + \left(\frac{459,800}{275} \times 0.11\right) + \left(\frac{18,458}{350} \times 0.15\right) = 23.0 + 183.9 + 7.9 = 215$$

Alternative D Short Term Parking Demand

$$\frac{459,800}{20,000} + \frac{18,458}{1,000} = 23.0 + 18.4 = 41$$

Total Alternative D Parking Demand

$$215 + 41 = 256$$

SOURCE: Environmental Science Associates, Inc.

APPENDIX E: AIR QUALITY

TABLE E-1: SAN FRANCISCO AIR POLLUTANT SUMMARY, 1988-1990 /a/

POLLUTANT:	STANDARD Federal/b/	STANDARD State/c/	1988	1989	1990
OZONE (O_3) (Oxidant)					
1-hour concentration, ppm					
Highest hourly average	0.12/d/	0.10	0.09	0.08	0.06
Number of violations			0	0	0
CARBON MONOXIDE (CO)					
1-hour concentration, ppm					
Highest hourly average	35	20	9.0	9.0	12
Number of violations			0	0	0
8-hour concentration, ppm					
Highest 8-hour average	9	9	12.8/e/	9.0/e/	6.9
Number of violations			1	0	0
TOTAL SUSPENDED PARTICULATE (TSP)					
24-hour concentration, ug/m^3					
Highest 24-hour average	260	100/f/	113	119	156
Number of violations of previous standard			1	3	1
Annual concentration, ug/m^3					
Annual Geometric Mean/g/		60/f/	41	47	38
Annual excess			No	No	No
PARTICULATE MATTER-10 MICRON (PM_{10})					
24-hour Average (ug/m^3)	150	50			
Highest 24-hour average			117	101	165
Number of violations			5	13	12
LEAD (Pb)					
30-day concentration, mg/m^3					
Highest 30-day average		1.5	0.1	0.1	0.06
Number of violations			0	0	0
NITROGEN DIOXIDE (NO_2)					
1-hour concentration, ppm					
Highest hourly average		0.25	0.12	0.14	0.11
Number of violations	None		0	0	0

(Continued)

TABLE E-1: SAN FRANCISCO AIR POLLUTANT SUMMARY, 1988-1990 (CONTINUED)

POLLUTANT:	STANDARD		1988	1989	1990
	Federal/b/	State/c/			
SULFUR DIOXIDE (SO_2)					
24-hour concentration, ppm					
Highest 24-hour average	0.14	0.05	0.013	0.017	0.012
Number of violations			0	0	0

NOTE: ppm = parts per million.
ug/m^3 = micrograms per cubic meter.
mg/M^3 = milligrams per cubic meter.

/a/ Data is a consolidation of measurements taken at 900 23rd Street and 10 Arkansas Avenue.
/b/ Federal standard, not to be exceeded more than once per year, except for annual average standards, which are not to be exceeded.
/c/ State standard, not to be equaled or exceeded, except for CO standards, which are not to be exceeded.
/d/ The federal standard is in terms of Expected Annual Excesses which is based on a three-year running average.
/e/ This CO is measured at a special measurement station at Ellis Street for street level maximums, referred to as a microscale site.
/f/ The California ARB has redefined the state particulate standard to apply to "inhalable" particulates only (i.e., those which have a diameter less than or equal to ten microns). The new standards are 50 ug/m^3 for 24-hour averages and 30 ug/m^3 for the annual geometric mean.
/g/ The annual geometric mean is a single number which applies to an entire year of data. "No" indicates that TSP concentrations did not exceed $60(ug)m^3$.

SOURCE: California Air Resources Board, 1988 - 1990, *California Air Quality Data.*

APPENDIX F: TYPICAL NOISE LEVELS

TABLE F-1: TYPICAL NOISE LEVELS

	Decibels	
	110	Pile driver (from 50 feet)
Very Loud	100	
		Light helicopter take-off (from 125 feet)
	90	
		Diesel truck (from 50 feet)
	80	
		Radio or TV playing in Living Room
Loud		
	70	
		Passenger car on city street (from sidewalk)
	60	
Quiet	50	
	40	
		Whisper
Very Quiet		
		Rustle of paper
	30	

SOURCE: Department of City Planning, "A Proposal for Citizen Review: Transportation Noise, Environmental Protection Element of the Comprehensive Plan of San Francisco," August, 1984.

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